

FAUNAL ANALYSIS OF UPPER FORT GARRY:
SOCIAL AND ECONOMIC IMPLICATIONS

by

Linda Seyers

A thesis
presented to the University of Manitoba
in fulfillment of the
thesis requirement for the degree of
Master of Arts
in
The Department of Anthropology

Winnipeg, Manitoba

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A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
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MASTER OF ARTS

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ABSTRACT

This thesis examines the faunal remains recovered from an archaeological site, Upper Fort Garry (DILg-21), located in Winnipeg, Manitoba. Excavations recovered two privy/refuse pits, located within the Hudson's Bay Company post. Over five thousand animal bones were recovered and analyzed. The objectives of this analysis were threefold: to reconstruct the pattern of animal utilization during the occupation of Upper Fort Garry, to compare this reconstruction with historical and archaeological records of animal use in the Red River Settlement, and to examine the relationship between diet and economic position.

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Excavations at Upper Fort Garry were carried out during the summers of 1981, 1982, and 1983 under the direction of Dr. Greg Monks, with Biron Ebell and Ellen Robinson as crew chiefs. The field crews consisted of students from the Universities of Winnipeg and Manitoba. The bones were identified using the faunal collections at the University of Manitoba, the Museum of Man and Nature in Winnipeg, the University of Toronto, and the Royal Ontario Museum.

I would also like to acknowledge and thank the Historic Resources Branch for access to the Delorme House and St. Peter's Church Dynevor collections. Thanks are also extended to K. David McLeod and Elisa Hart for answering innumerable questions about the aforementioned sites.

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Chapter I

INTRODUCTION

In general, faunal analysis in archaeology played a minor role until the middle of the twentieth century. Bones, if collected and kept, were sometimes identified to species and added as an appendix to the back of the site report. Later, it was realized that one could learn more from bones than simply what kinds of animals were present. For example, information could be gained concerning the environment, climate, vegetation, subsistence and diet, and the date of the site through extirpated and extinct species, and the technology of the inhabitants of the site.

The situation concerning faunal analysis in historic archaeology was even less advanced. The first faunal report from an historic site was published by Parmalee in 1960 (Jolley, 1983: 64). Again, the reports took the form of basic laundry lists of species. As late as the mid-1970s comments such as the following were being made in the literature:

Time did not permit us to make a thorough study of these remains [fauna] and as this was certainly not representative of a total population, it was felt that there was no need (Hanson and Hsu, 1975: 164; in Jolley, 1983: 66).

Detailed identification and analysis of this quantity of bone would be a lengthy process and would not be of sufficient value to justify the time spent (Stephensen, 1974: 32b; in Jolley, 1983: 66).

At first [bone] was considered merely an unpleasant inconvenience. The bone was thrown out with no more than a

brief note on the unit-square-sheet that much animal bone was encountered in the excavation of that level (Brose, 1975: 78).

Only recently has faunal analysis been seriously undertaken in historical archaeology. These current studies are reflecting a new approach. Faunal analysts are studying species and their frequency to make statements about ethnicity, social and ideological systems, economic variability, and acculturation (Lyman, 1987).

In keeping with this trend, this study will investigate economic variability among the residents of the Red River Settlement as reflected by the faunal food remains.

The objectives of this study are threefold:

1. To reconstruct the pattern of animal utilization during the occupation of Fort Garry with respect to the relative importance of species and butchering practices employed;
2. To compare this reconstruction with historical and archaeological records of animal use in the Red River Settlement and surrounding areas during the mid-1800s; and
3. To examine the relationship between diet and economic position by identifying patterns within the reconstruction and subsequent comparisons which may reflect the economic position of the consumers.

1.1 LITERATURE REVIEW

There is a growing trend in archaeology towards the manipulation of data to investigate past social and economic relationships. Historic Sites faunal analysis has lent itself well to this kind of study, but results for the most part have been inconclusive due primarily to the smallness of the sample site. A variety of approaches have been taken.

Joanne Bowen (1975), working at Mott Farm, a rural farmstead in Portsmouth, Rhode Island, attempted "to define the social and economic context of the site and ... interpret the uses of domestic animals" (Bowen, 1975: 12). While providing a good description of the various economic uses of animals (breeding, milk, wool), she fails to interpret this information or to discuss it in terms of the social and economic context of the site as a whole.

Other descriptive studies were conducted by Brose (1967) and Balcom (1981). Brose (1967) looked at the refuse dump of the Fort Mackinac garrison at Mackinac Island, Michigan. The site covered a span of twenty years and a vast amount of material was recovered. Brose attempted to determine status differences between officers and soldiers. Although there are some comments regarding these differences, most of the attention is spent on identifying changes through time in the diet and relating this to the changes in the military importance of Fort Mackinac.

Balcom described the subsistence base for the occupants of Port Severn, discussing which foodstuffs were imported and which were

obtained locally. She considers some analytical problems, such as garbage disposal patterns and why certain species are not represented in the archaeological sample.

Guilday (1977), working at Fort Ligonier, and Wilson and Southwood (1976), working at Fort George on the Niagara, deal primarily with analytical problems encountered by historical faunal analysts. Such problems include recognizing salt pork, beef, or mutton in the archaeological remains; whether the meat was processed without bones; and identifying the remains of animals slaughtered at the site as opposed to those slaughtered elsewhere and brought to the site.

In partial solution to these problems, Lyman (1977) analyzed butchering marks on domestic animal bones from Fort Walla Walla. This analysis revealed non-functional, possibly individual and functional variation in the butchering pattern (Lyman, 1977: 67). Lyman was able to identify a butchering pattern followed at the site which is different from that followed today. The butchering data also indicated that "cows, sheep and pigs were obtained in butchered form" (1977: 67).

The aforementioned studies provide good descriptions of the diets enjoyed by the occupants of the various sites. They also give consideration to some of the analytical problems encountered. However, little if no attempt is made at using faunal data to learn about the socioeconomic structuring at the sites. While Otto (1979) and Rathje and McCarthy (1979) have examined variations in social, ethnic, and economic position using ceramics and modern material culture (garbage) respectively, few researchers have made the attempt via faunal analysis. Reports in which this subject has been broached are discussed below.

Losey (1973) analyzed the remains from Fort Enterprise which was Captain John Franklin's winter outpost. The goal of this study was to elucidate the social division and cultural differences between the officers (Englishmen) and the Canadian voyageurs (Cree-Metis). Losey looked at the bone frequencies in different middens. Although there was little documentary evidence concerning diet, there were indications of social differences between the "Canadians" and the "gentlemen." Based on the information gathered, Losey hypothesized that

If a cultural preference regarding the utilization of specific portions of caribou taken at Fort Enterprise existed between officers [Englishmen] and men [Canadians], then a concomitant difference in the relative distribution of caribou remains should exist between the two related middens (Losey, 1973: 137).

The results of this study, however, were inconclusive because the faunal sample was too small.

Herskovitz (1978) studied the dietary reflections of socioeconomic or class differences at Fort Bowie, a nineteenth-century U.S. army outpost in Apache Pass. He felt that the faunal data seemed "to indicate the purchase of more expensive cuts for the Army officers and less expensive cuts for the enlisted men" (Herskovitz, 1978: 137). The difference in price between different cuts of meat was influenced by culturally derived preferences and the physiological quality of the meat. In his discussion he considers the parts of animals in demand, butchering techniques, and the tools employed. The distribution of the bones is related to the spatial distribution of the buildings and their functions. He notes that in the bachelor officers' quarters, hind quarter meat cuts (the most desirable) predominate. In other areas of the fort, the front quarter cuts predominate.

Lesley Drucker (1981), using the same basic premises as Herskovitz, analyzed the household food remains from a slave occupation at Spiers Landing, South Carolina. He believed that the analysis of a household's food remains could be an important tool in defining economic status (Drucker, 1981: 62). He found that at the Spiers Landing site seventy-five percent of the faunal assemblage was composed of poor quality meat cuts (metapodial, hoof, and cranial elements). The majority of the high quality meat elements were from wild resources and not from domesticated resources. No inter-site comparisons were made and hence no standardized patterning was identified.

Two reports dealt specifically with socioeconomic and sociocultural variability. In "Diet and Foodways of Eighteenth-Century Spanish St. Augustine," Reitz and Cumbaa (1983: 151-227) were interested in studying how social status, ethnic traditions, and acculturation processes were reflected in faunal remains. In their preliminary research, the authors conducted a literature search for references as to the diet of people in the St. Augustine community, available food resources, and the traditional diets of people in Spain, New Spain, and the southwestern United States. The faunal remains from six households of known status were examined. In the analysis, Reitz and Cumbaa examined the diversity of species and the cost expenditure involved in killing and preparing the various species.

Definite differences were found within the faunal assemblages for the six houses. In general, there was a "clear selection in favor of species that could be exploited using mass capture or intended devices,

providing a good return for minimal efforts" (Reitz and Cumbaa, 1983: 1979).

Domestic animals made up the largest percentage in all of the assemblages. However, it appears that upper class (Criollo and Peninsular) families used the most wild terrestrial biomass, while Mestizo families used the least. The middle class families enjoyed more access to the domestic fauna. Marine resources were utilized more by Mestizo families than by the upper class, hispanic families.

The diets of all three groups showed adaptations to the new environmental conditions. "The Indian woman's household deviated from a purely aboriginal diet with the incorporation of several different habitats" (Reitz and Cumbaa, 1983: 181). The Criollo and Peninsular diets showed substantial modifications from the Old World pattern in that there was a definite preference for cattle and pigs as opposed to sheep. As well, there was an increased use of wild terrestrial species and the addition of domestic reptiles (Reitz and Cumbaa, 1983: 181).

In this analysis, the differences in species use were interpreted as reflective of status differences. The upper class diet was found to be more expensive to maintain given the local environment. No work was done on the aspect of cost and "quality" with regard to eighteenth-century standards as indicated by different carcass portions.

Another report by Shulz and Gust (1983) dealt extensively with economic position. The authors excavated residential and mercantile sites from nineteenth-century Sacramento and used the faunal remains to examine butchering units and costs of nineteenth-century beef cuts.

The resultant ordinal ranking of cuts ... was then used to assess the economic value of the meat represented by the faunal debris in the ... deposits and to determine the accuracy with which this mirrors the relative socioeconomic placement of the depositing populations, as determined from the historical record (Schulz and Gust, 1983: 48).

They worked with a good sized sample of butchered cow bone and were able to show variations in cut frequencies among the four identified sites. However, they interpreted these economically-based differences in terms of social positioning without providing the theoretical rationale. At a more basic level were problems with their analytical methodology. In all calculations, the number of identified specimens was used; no attempt was made to determine the minimum number of times each beef cut was represented. The number of bones in each type of beef cut varies; frequencies per cut may be skewed depending on the number of bones in each type of cut (Lyman, 1987: 59-60).

To summarize, the reports to date have documented several approaches to study the relationship between the faunal material and the social and/or economic position of the consumers. The work done by Balcom (1981), Bowen (1975), Brose (1967), and Lyman (1977) are all basically descriptive in nature, outlining species utilized, body portions preferred, and changes in diet over time. Others, such as Losey (1973), Herskovitz (1978), Drucker (1981), Schulz and Gust (1983), and Reitz and Cumbaa (1983) were more practical in their application, taking archaeological collections and attempting through quantification to give more insight into diet, economic position and social position. Special attention was paid to butchering techniques, the quality of meat represented by the cuts, and the expense of these cuts. Analytical

problems encountered and theoretical implications concerning osteo-archaeological methods and interpretations were considered by Guilday (1978), Wilson and Southwood (1976), and Uerpmann (1973).

The review of literature pertaining to faunal analysis and its role in historical archaeology clearly illustrates the theoretical and methodological advances which have been made in this field over the past twenty years. Of particular importance is the use of faunal analysis in exploring the socioeconomic structuring of society. However, it is also apparent from the literature that much work still needs to be done. Problems of sample size, data interpretation, and accurate economic assessment must be overcome.

1.2 THEORETICAL ORIENTATION

Archaeology is a subdiscipline of anthropology; both have as their ultimate goal to better understand human behavior and cultures. Unlike anthropology, however, which deals with living people, archaeology concerns itself with the material remains left by people.

One of the major premises in archaeology is that "specific patterns in behavior can be directly related to specific patterns in material culture" (Rathje and McCarthy, 1979: 261). As Binford so aptly says, "we cannot dig up a social system or ideology which functioned together with [the] more behavioral elements within the appropriate cultural subsystems" (Binford, 1962: 218-219).

On the other hand, some archaeologists (Hodder, 1982; Schuyler, 1978) believe that human behavior and its relationship to depositional patterns is not the best approach, perhaps one should look at their symbolic associations. Although artifacts are the primary unit of archaeological research, they cannot be studied as an entity separate from meaningful cultural context. The premise behind the contextual approach is that "a society is made up of interrelated parts and we can explain one component by showing how it works in relation to other components" (Hodder, 1982: 2). Within this approach, "material culture can be examined as a structured set of differences. This structured symbolizing behavior has functional utility, and it must be understood in those terms" (Hodder, 1982: 7). These structures and symbolic associations derive their meaning from the cultural context.

The concern must be to examine the role of material culture in the ideological representation of social relations. Excavated artifacts are immediately cultural, not social, and they can inform on society only through an adequate understanding of social context ... The daily use of material items within different contexts recreates from moment to moment the framework of meaning within which people act (Hodder, 1982: 10).

Schulyer (1978: 30) suggests that historic sites archaeology can be used in social, economic, and ideological interpretation. He defines historical archaeology as "the study of the material remains from any historic period [that is] a period in which the cultures in question have a documentary record and that writing is having a full impact both on the cultures being studied and on the scholarship of the investigation" (Schulyer, 1978: 27). On the other hand, historic sites archaeology is "the study of the material manifestation of the expansion of European culture into the non-European world starting in the 15th

century ending with industrialization of the present depending on local conditions" (Schulyer, 1978: 28). Thus, it deals with a specific historical subject that has temporal, spatial, and cultural boundaries.

Hence, both historical and historic sites archaeology have control over artifactual data as well as documentary data. In this sense, they are more holistic than history or prehistoric archaeology because the traditional data bases are broader (Schulyer, 1978: 28). This increases the archaeologist's explanatory power of observations and interrelationships, thereby strengthening the explanations within the contextual framework.

For these reasons, a contextual approach is perhaps the best means for assessing and explaining economic variability. The faunal material was selected for this analysis for several reasons. Firstly, a large amount of bone was recovered, it was in excellent condition, and data control was good. Secondly, food remains provide an excellent data base from which to study economic structuring. Diets are universally characteristic in that they are culture-specific and sometimes even specific to different members within a culture group. To coin a phrase, "one is what one eats" (Wing and Brown, 1979: 11). According to Daly,

The remains of food animals have passed through the cultural filter ... They do not constitute a chance assemblage, nor is their presence in the site due to anything but human behavior (Daly, 1969: 146).

A number of factors influence the selection of animals to be exploited for subsistence. Firstly, there are culturally determined preferences. This includes such things as political regulations or

ceremonial food taboos. Secondly, individual tastes play a role in the selection of foodstuffs. Thirdly, there are a number of economic factors which come into play. It is this idea of economics which is extremely important. Economics is defined as "the study of human behaviour as it relates to scarce means, which have alternative uses; to given ends, such as maximization of income, usually employing price data in the comparison" (Gould and Rolb, 1964: 227).

If food items are viewed as economic goods - that is, they are useful, scarce and command a price in the market (Gould and Rolb, 1964: 227) - they should reflect the socioeconomic position of the consumers. One can hypothesize that people belonging to a higher socioeconomic level may be able to enjoy a diet which is more expensive to maintain given the local environment (Reitz and Cumbaa, 1983: 159).

Expense may be calculated either as spending money to purchase food [and] hire the services of a hunter or fisherman or as expending calories to do the task personally. [Thus] prestigious foods might be those difficult to obtain because of monetary expense or because of caloric cost (Reitz and Cumbaa, 1983: 159).

In the archaeological evidence, this may be expressed through observable differences in the cuts of meat represented, the species represented in the sample, and the age of the butchered animal.

A trip to a local supermarket is evidence enough as to the variety and types of meat cuts and the corresponding prices. Whatever the reason, whether it be a better "grade" of beef or an item in high demand but with scarce supply, some cuts cost more to obtain. One may assume that the same thing happened in the past.

Bones can be classified into three grades:

1. The vertebral column (excluding the tail), upper leg bones and bones of the shoulder and pelvic girdle; these are the muscular parts of the body with high value meat;
2. The lower leg bones and skull (with brain and jaw musculature) and mandible (jaw musculature and tongue), ribs and sternum; medium value meat; and
3. face bones, tail, feet (including ankle joints); lowest value meat. (Uerpmann, 1973: 310).

Drawing from this classification it can be postulated that since retail meat cuts from different sections of the carcass are differentially ranked economically, the frequency of consumption of differently-priced cuts will vary with economic class of the consumers (Schulz and Gust, 1983: 45).

The types of species and the range of species represented in the sample may reflect economic positioning.

Higher diversity may reflect either the wealth needed to purchase a wide variety of foods or the ability (or necessity) to exploit directly a wide variety of natural resources through familiarity with local conditions (Reitz and Cumbaa, 1983: 160).

Where a high diversity is found in lower socioeconomic sites, the majority of high quality meat elements should come from wild resources, suggesting that a significant portion of the most nutritious meat would be obtained from hunting and fishing (Drucker, 1981: 63).

Husbandry practices may reflect aspects of the economy, assuming that the age of slaughter can reflect differences in the quality of meat (Jolley, 1983: 73). Meat from young animals tends to be more tender and

succulent, and thus more desirable. However, the gross amount of meat product is less than from an older, larger animal, so in general the meat is more expensive to produce and purchase. The frequency of consumption of differently-priced cuts from younger as opposed to older animals, therefore, will vary with the economic position of the consumer.

Using these techniques, it is possible to assess the economic value of the meat represented. However, "the accuracy with which this mirrors the relative [economic] placement of the depositing populations must be determined" (Schulz and Gust, 1983: 48).

Several analytical problems must be dealt with. For instance, how does one identify pemmican, dried meat, and salt pork/beef in the archaeological remains? "Pemmican is made from meat that has been dried and beaten, then mixed with berries, tallow or fat" (Walker, 1982: 62). Therefore, in its edible form, no bones would be included, and thus no remnants would be found in the archaeological record. The same problem exists when dealing with salt pork. The literary evidence is of no help in clarifying this situation, as the sources often conflict. Concerning Fort Ligonier, Guilday said that salt pork left no archaeologically recoverable trace, implying that the meat was boned before it was barreled and that any pig bones found could mean either living animals or dressed carcasses (Guilday, 1977: 131). On the other hand, a document dating from 1766 from the commissary's office at Quebec states "it is your business to see that there are not too many hocks among the pork, four is as many as ought to be in a barrel" (Wilson and Southwood, 1976: 125).

Assessing the economic importance of individual species to the consumer's diet poses another problem. Simple bone frequencies, while providing the number of bones per species, are inaccurate indices of dietary importance (Grayson, 1978). It would be foolish to conclude that because the same number of rabbit and cow bones are present in a given sample that both contribute the same amount of nourishment to the diet and are thus of equal importance. "The value of a count of pieces per species is limited by the different meat quantity represented by each species and the nature of the fragmentation of its bones" (Uerpmann, 1973: 310).

Calculating biomass is an alternative procedure (Ewen, 1986). This technique involves using the weight of the archaeological bone in "an allometric formula to derive a proportionate quantity of biomass for the skeletal mass recovered" (Reitz and Cumbaa, 1983: 168). The degree of fragmentation of the bone is not a problem as it does not affect the accuracy of the measurements. However, the resulting biomass measurement "has no direct relationship either to original total body weight of the animal or to the portion of that total body weight consumed" (Reitz and Cumbaa, 1983: 168). Also, the weight of buried bones can change through time; thus, if burial conditions are different incorrect results may be obtained (Uerpmann, 1973: 311).

Determining the contribution of individual species to the consumers' diet and thus its economic importance is perhaps best done using a combination of methods. The calculation of the minimum number of individuals represented in a sample in conjunction with the

determination of edible meat estimates (White, 1967) can indicate the relative importance of each species. This estimate, while in proportion, will be grossly too low. One must also note that the difference between the number of finds and MNI increases as the size of the sample increases. Thus, samples of a similar size should only be used for comparisons (Uerpmann, 1973: 311).

Secondly, by identifying the body segment and the type of butchering cut, it is possible to assess the quantity of meat supplied. This can be done by classifying the bones into grades - parts of the body with high, medium, or low meat value, for example. This will provide a relative scaling of importance which can be used to assess economic value. This technique is especially effective where retail cost of meat cuts is known. The economic value of the meat reflects the consumption behaviour of the consumer.

At this point, it is appropriate to consider if and how economic position, as reflected by the economic variability in an archaeological deposit, can be related to social variability. In this thesis, the term "socioeconomic position" has been avoided.

While this term and its synonyms (socioeconomic status, social status, and class differentiation) connote some common-sensical notion about a person or group of persons' ascribed or attained position within a society relative to the positions of other members of that society, the concept seems sufficiently ambiguous in zooarchaeological contexts to be of limited and obscure explanatory value. (Lyman, 1987: 58).

By considering economic position and social class separately, it is possible to discuss the characteristics of each and examine their relationship. "Class" is an analytical category that may be applied to

arbitrarily defined groups. There are two types of classification possible: objective and subjective.

Objective classification proceeds on the basis of directly measurable criteria such as income, property, education, occupation, and position of responsibility or power. Subjective classification uses popular evaluation criteria, usually via polls, and assumes the ordering of units by prestige rather than wealth or power (Monks, 1988).

The two types of classification are related because subjective judgements are based on objective criteria. According to sociologists, the objective criteria of class membership are variables such as income, occupation, property ownership, and education. All the objective criteria of class membership reflect objective economic differences between the analytical units (Monks, 1988).

Through archival and historical documents, it is possible to detect occupation and income as defining criteria of economic classes. Consumption and expenditure values are highly correlated with both occupation and income and can be used to detect prestige classes (i.e. social position or class). Thus, given the tight correlation between economic and prestige classes, and given the ability of prestige indices to reflect broad occupational groups, it is relatively safe to argue that prestige classes detected archaeologically correspond more or less directly with economic classes as described in historical documents on the basis of both occupation and income (Monks, 1988).

1.3 AIMS

This thesis will attempt to overcome the problems encountered by researchers in earlier studies, namely problems of sample size, data interpretation, and accurate economic and social assessment of the data. Over 5,000 bones will be identified and analyzed over the course of the thesis. This represents a sample size of over seventy percent; any results, therefore, should be statistically significant. A thorough examination of the social and economic structure of the Red River Settlement (RRS) and the Hudson's Bay Company (HBC) will be conducted. This extensive research should provide an excellent understanding of the time period and society in question, thereby allowing a more accurate interpretation of the cultural context from which the faunal collection was derived.

The bones will be identified as to species, noting anatomical elements and cultural and natural modification. Butchered bones will be closely analyzed with each bone being assigned to an appropriate meat cut. The minimum number of each meat cut represented will be calculated. Further archival research will be conducted to determine the economic value of each meat cut in the RRS market during the time period in question (1840s) and the faunal sample will be evaluated and interpreted using this data.

This approach allows for the collection to be interpreted within a cultural and temporal framework. Using the minimum number of cuts provides a more accurate picture of the makeup of the faunal sample than working with the number of identified specimens. This approach also

lends itself quite easily to an economic analysis. The meat yield per cut will not be calculated, nor will the cost-efficiency of each beef purchase, because it is not possible to demonstrate empirically that they are tightly correlated to purchasing power, income level, or economic class (Lyman, 1987: 62).

The major contribution this thesis hopes to make is at a methodological level. Although the historical data accumulated will be site-specific and temporally limited, a framework for the economic analysis of faunal samples will be established.

Chapter II

HISTORICAL BACKGROUND

This chapter will examine the development of agriculture and animal husbandry in the Red River Settlement during the period 1812, the beginning of Selkirk's colonization at Red River to 1850. This terminal date was selected for two reasons: it marks the introduction of farm machinery to the Valley and the privy deposits have been artifactually dated to the Sixth Regiment of Foot's stay at Upper Fort Garry from 1846 to 1848.

This chapter will also discuss the social context within which the artifactual data could be analyzed and outline the development of social and economic groups in the Settlement and Company. Special note will be made of the subsistence strategies of the community giving the kinds of food available locally for consumption.

2.1 AGRICULTURE IN THE RED RIVER SETTLEMENT

The British selected the junction of the Red and Assiniboine as the focal point of their fur trade operations in North America using it as the major administrative and supply point for outlying posts (Murray, 1967: 13-16). The development of agriculture in the Red River Valley was a logical step in the struggle for control of the Fur Trade.

In 1811, the Hudson's Bay Company accepted Thomas Douglas, Fifth Earl of Selkirk's proposal to establish a colony near the forks of the Red and Assiniboine Rivers (Miquelon, 1970: 10). Selkirk "wanted to resettle small farmers who had been forced off their land in Scotland and he believed that these settlers could provide agricultural supplies that would improve the position of the HBC in its struggle with the NWC" (Murray, 1967: 16-17).

The years immediately following saw several developments. The population increased substantially with the influx of settlers. The North West Company merged with the HBC in 1821 leaving the amalgamated Company in control of the major trade network in British North America and the United States. The Company sought to regulate and to discourage any private trading done with the United States outside the realm of the Company.

Although the HBC had helped to sponsor the first farming settlers in the valley, they soon realized that an expansion of agriculture would be detrimental to the fur trade (Murray, 1967: 21). Thus the Company discouraged additional immigration and hindered large-scale export of farm produce. They also encouraged the Metis to supply pemmican for fur trade operations thus reducing the local market for farm surpluses (Murray, 1967: 17).

In addition to the discouragement from the HBC, the settlers had to deal with locusts, early frosts and floodings. The flood of 1826 was especially trying, however, after the water receded the Settlers struggled to re-establish themselves.

A system of land distribution was developed with the arrival of the Selkirk Settlers. They were provided with ninety acre lots which measured 660 feet wide by 1.8 miles in length, and were allowed access to a ten acre wood lot on the East Side of the Red River (Murray, 1967: 35). Twenty four such lots were issued. The remainder of the lots in the Settlement were surveyed after Selkirk's death in 1820. These lots were of the pattern established in the St. Lawrence Valley and measured 660 feet wide by one and one-quarter mile. "The owners of river lots had the right to cut hay on the prairie for two miles beyond their surveyed lots. When the HBC took over the Selkirk estate in 1836, it resurveyed all of the lots at Red River and left them intact" (Murray, 1967: 35).

Not all land was purchased from Selkirk. In return for years of service, the HBC granted 100 acres to many of its employees (Murray, 1967: 35). Settlers of British descent lived primarily north of Upper Fort Garry but south of the Indian colony at St. Peters. The French Canadians inhabited St. Boniface where they rented land from the Catholic Church or took over lots along the Seine River, which had been abandoned during the 1826 flood (Murray, 1967: 35). The Metis occupied lots along the River, south and west of Fort Garry, in the Pembina Valley and in St. Boniface. Few actually owned lots but occupied them exercising squatter's rights (Murray, 1967: 35).

Although the market for agricultural produce was never large, the Settlers were able to establish and support themselves as well as supply the fur trade with staple crops. It took many years to reach this state of self-sufficiency.

The first crops were planted unsuccessfully in the spring of 1813 (Sprague, 1983: 19). In the following year spring wheat, barley, oats, Indian corn, buckwheat and 300 kegs of potatoes were sown. The potatoes grew well, but the remainder of the crops yielded only seed for the following year (Morton, 1967: 50). Seed wheat was obtained from Fort Alexander in 1813. This seed probably originated in Canada or the British Isles but "by 1819 nearly all of it had been lost. On June 5, 1820, 250 bushels of seed wheat were brought into the RR from Prairie du Chien and were sown at once" (Morton, 1967: 74). This strain of wheat proved to grow well and became the standard Red River wheat (Morton, 1967: 74).

The lack of adequate farm implements further limited agricultural pursuits.

The facilities for farming were not of the best. The implements (the spade and the hoe for planting and sowing) were as primitive as well could be...The reaping was done with the sickle and later on with the cradle (MacBeth, 1897: 2).

In fact, prior to 1824 there were no plows in the settlement. From 1825 until 1850 wooden ploughs with iron points and wooden mould boards were utilized, however, they were not very efficient in the thick and heavy Red River Valley soils (Sprenger, 1972: 163; Murray, 1967: 38). Cast iron plows, mechanical reapers and threshers reached the Red River Settlement in the 1850s but were few in number (Sprenger 1972: 163). Before 1850,

men cut grain by hand and women and children tied it into bundles with willow withes. The bundles were shocked (or put into 'stocks') in the field and then were hauled into the barnyard and stacked. Threshing was done with hand flails or by the trampling of animals. The most common surface for threshing was a level 'ice floor', although farmers who had wooden floors in their barns threshed in doors and did not have to delay this operation until winter (Murray, 1967: 38).

The settlers did not limit themselves to raising crops alone. Animal husbandry played a very important role in each farmer's subsistence operations (Murray, 1967: 39). Livestock of the Settlement included cattle, pig, sheep and horses (Table 1).

TABLE 1
Census of the Red River Settlement, 1831 to 1856

	1831	1834	1840	1849	1856
Population	2390	3356	4280	5391	6691
Acres Tilled	2152	3230	3953	6392	8806
Acres Tilled per Person	0.90	0.96	0.92	1.2	1.3
Houses	375	567	614	745	933
Stables	265	469	621	1066	1191
Barns	134	211	254	335	409
Horses	410	630	1251	2085	2681
Oxen	958	1708	1793	2252	3152
Cattle	1194	2084	3847	2147	3679
Calves	801	1211		1605	2784
Pigs	362	2053	1984	1565	4929
Sheep			1888	3096	2429
Plows	187	275	396	492	590
Harrows	243	353	457	576	672
Carts	302	608	1351	1918	2108
Wind Mills				18	18
Water Mills				2	9

There were also 8 threshers, 2 reapers, 6 winnowers, and one steam mill in the settlements in 1856.

Source: Murray, 1967.

Cattle were by far the most important and most numerous livestock. Cattle were introduced into the Settlement by 1813 at the latest. Mention is made in 1813 of Peter Fidler bringing with him a bull, cow and yearling heifer he had purchased from the Nor'westers for the Colony (Morton, 1967: 48).

Importing significant numbers of large animals such as cows, pigs and sheep from England via Hudson's Bay or from Canada via Rainy Lake proved to be an extremely difficult task. Therefore, only a few animals were brought into the Settlement by these routes (Sprenger, 1972: 165). The United States was relied upon instead as the primary supplier of livestock to the Settlement.

In 1822, approximately 300 head of cattle were brought from the Mississippi Valley by Governor Bulger (Morton, 1967: 66). These animals were of a "non-descript stock that was well-adjusted to frontier conditions and could be broken to the yoke easily" (Murray, 1967: 41). Attempts were not made to improve the stock by breeding practices.

For want of care, our cattle are deteriorating fast in size, although costly bulls, and of the finest breed, both from England and the U.S., have been imported into the colony. The local government has taken no steps to restrain a multitude of dwarfly bulls from running at large in all seasons, to the great injury of the breed; and as one evil generally begets another, the large oxen keep at bay the small bulls and not only destroy the cows, but injure themselves into the bargain (Ross, 1856: 390).

Little or no attempt was made to shelter livestock during the long cold winters. In 1850, an agricultural association was formed to encourage stall-breeding and better livestock practices (Ross, 1856: 389). However, prior to 1870, both good cattle and experienced cattlemen were the exception in the RRS (Murray, 1967: 41).

Pigs were also an integral part of the livestock in the valley. Records indicate that in 1819, there were seventy pigs in the Settlement, by 1834, there were 2053. This number decreased slightly as the market for pork was limited by the extensive use of pemmican. Swine production resumed after 1849 (Murray, 1967: 41).

Twenty Merino sheep were introduced into the Settlement in 1812, however, they did not survive (Murray, 1967: 41). Sheep production was not attempted again until twenty years later. In 1832, an expedition, headed by W. Glenn Rae, left Fort Garry for Kentucky where they purchased approximately 1300 sheep. During the long trip back many of the animals perished. Upon their return on September 16, 1833 only 259 had survived (Hutton, 1921: 10-12). Despite the harsh climate and attacks from dogs and wolves, the sheep prospered in the Red River Valley increasing to over 4000 by 1846. However, production of mutton and wool never became a major part of agricultural pursuits with the HBC limiting the market of both products (Nor'wester, Mon. May 14, 1860).

Horses were kept in the Settlement and used primarily for transportation and freighting purposes. They were also used extensively for the bison hunt. As stated previously, oxen were used for field work.

Today the Red River Valley is a major agricultural centre. Its potential was definitely realized early in the nineteenth century however, extensive exploitation was slow in occurring.

Although an unlimited amount of land was available for the taking, nearly all settlement and farm operations remained concentrated in the narrow river lots. The extent of land use increased very slowly (the area tilled per person increased to

only 1.3 acres by 1856), the quality of crops generally failed to meet export standards, and the livestock population remained at little more than a subsistence level (Murray, 1967: 44).

It is quite apparent that the economy of the Red River Settlement stagnated as soon as the settlers were capable of producing a surplus of agricultural goods. This state could have been rectified by an expansion in the local population or by locating and supplying an outside market. The HBC however, discouraged both options because they were inconsistent with its priorities, namely, making a profit in the fur trade.

Thus, the Settlers produced enough to support themselves and the limited needs of the HBC. "The plight of three experimental farms indicates that even when liberally subsidized, early Red River Agriculture was limited by human shortcomings and the conditions that existed within the settlement area" (Murray, 1967: 45).

The first model farm was established by Lord Selkirk in 1817. He hoped to provide the fledgling agricultural colony with seeds and extra food supplies. The project succumbed in 1822 to the infestations of grasshoppers, shortages of draft animals, seeds and equipment (Murray, 1967: 45).

The second experimental farm was set up by the HBC in 1831 under the direction of Robert Campbell. This operation was to serve as an example for the Settlers and hopefully, to help them produce superior products. Campbell was an experienced farmer and under his direction it is possible that such a venture might have succeeded. However, Campbell

left in 1832 to go to Kentucky and buy sheep for the farm. Chief Factor McMillan, a fur trader by occupation with no agricultural experience, was left in charge. The Metis servants appointed to the farm were also inexperienced. Ross (1856: 134-135) states: "Their extent of the skill consisted in having seen wheat, barley, and potatoes raised, and that in the simplest and rudest manner." Predictably, the farm failed. In 1837, the HBC sold out at a loss (Murray, 1967: 45-46).

The HBC sponsored another farm in 1836 (Ingram, 1970). In March of that year, the Governor and Committee of the HBC wrote to Simpson:

It is highly desirable to establish an Export trade from the settlement, as a source of revenue from England, and as the country appears to be well adapted from rearing sheep and Black Cattle, and for the growth of Flax and Hemp... we have therefore determined on establishing a farm on a large scale... (Guinn, 1980: 68).

The farm was intended to serve as an example for the settlers and to help them adopt modern agricultural practices in order to eventually produce crops appropriate for an export trade (Ingram, 1970: 47). Once again, due primarily to inexperienced supervision, the farm failed. Captain George Marcus Cary and a number of farm servants were sent from England to set up the farm at the site selected by the Committee, which was on the low grounds on each side of the New Establishment at the Forks (Guinn, 1980: 68). After two full years of operation only 20 acres had been cultivated, and they were "raising wheat, barley, potatoes, and turnip-articles which every one in RR had for sale, and for which there was no market" (Ross, 1856: 213). Operations were reduced in 1840 when it was decided to maintain it solely for the sake of having a Company owned farm in the colony (Ingram, 1970: 49).

Thus, agricultural pursuits in the Red River Valley developed and expanded slowly. The early settlers had to contend with floods, droughts, frosts, insects, inadequate equipment and poor storage facilities. There was also no market in which to sell their goods and what little market there was, was controlled by the HBC. Under these adverse conditions the Settlers managed to produce food for themselves and supply the fur trade. However, due to the constraints listed above this chain of supply proved at times to be inadequate.

"The chief reliance of the colony for food lies in its agriculture, its Plains hunts, and its fisheries. The rabbits in the woods in winter, and the spring and autumn goose hunts, also offered temporary sources of supplies" (Hargrave, 1871: 175). The goose hunt was a biannual event occurring during the spring and fall migration of the birds. Much public interest was generated at these times (Hargrave, 1871: 173).

Autumnal fisheries on Lakes Manitoba and Winnipeg provided the Settlement with a copious source of food. Although the lakes abound with fish, whitefish and sturgeon were chiefly exploited. During the summer months, fishing was also done on the Red and Assiniboine rivers where goldeyes, catfish and a few sturgeon were caught (Hargrave, 1871: 177).

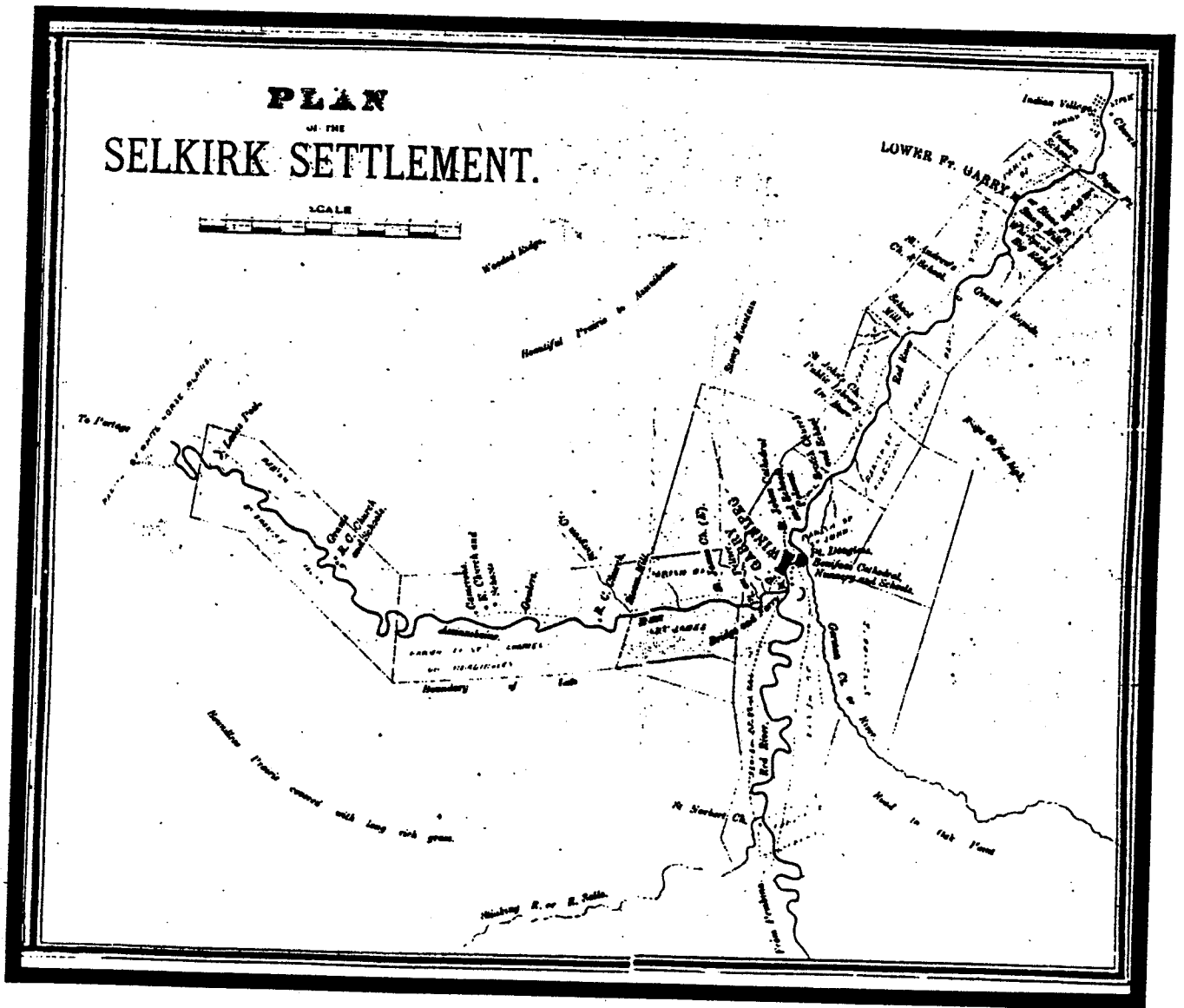
2.2 SOCIAL AND ECONOMIC STRUCTURE: HBC AND RRS

The preceding section outlined the economic pursuits of the Settlers and their agricultural relationship with the HBC. However, to better understand the social context within which the artifactual data could be examined one must also comprehend the social and economic structure of both the Red River Settlement and the HBC.

The social structure of the Red River Settlement was hierarchical in nature. Defining characteristics were primarily ethnic identity, religion and occupation.

The Red River Settlement was composed of a number of ethnic groups. The members of each group tended to congregate together and settle in distinct areas of the community. The Scottish and English or Anglican Protestant settlers lived along the Red River between Upper and Lower Fort Garry in what eventually became the parishes of St. John, Kildonan and St. Paul, St. Andrew, respectively. The French Canadians lived in St. Boniface, as did the Swiss and Demeurons homesteaders, who settled primarily along the Seine River. The Metis lived in the Settlements of White Horse Plains and St. Francois Xavier and also moved to the areas abandoned by the Swiss and Demeuron, after the flood of 1821, namely St. Vital and St. Norbert (Sprague and Frye, 1980: 180). North of Lower Fort Garry was located the Indian Settlement of St. Peter's (Figure 1).

Although often denied by the Red River Settlers, there appear to have been ethnic prejudices which helped to maintain the spatial boundaries. For example, MacBeth (1897: 51) states: "no caste or color lines were



Hand coloured print: 21.4 x 25.9 cm.;
1:253,440

Inset on "Laurie's map of the North-west
Territories . . . Compiled by D. Codd, Ottawa.
Entered according to Act of Parliament of
Canada, in the year 1870 by D. Codd, in the
office of the Minister of Agriculture.
Roberts, Reinhold & Co., Lith., Montreal".

Figure 1: Plan of the Selkirk Settlement (Artibise and Dahl, 1975: 10)

drawn, not only was the white friend made welcome, but the belated Indian ..." However, comments such as the following contradict this point of view and indicate obvious ethnic prejudices. In a letter dated Nov 30, 1845 to Mrs. Dugald Mactavish, Letitia Hargrave wrote:

Dr. Rae is still here and is doctoring him, as he despises our own man who appears no great things. I console myself that he must know his own profession. I don't care about his being a Pork-eater which is one great objection to him in the guard room (MacLeod, 1947: 211).

Religious differences and the teachings of the missionaries also contributed to the social separation of the various groups within the Settlement. In attempts to christianize the Northwest, missionaries (notably the Anglican Church Missionary Society) encouraged movements towards permanent settlements and "Christian" families as opposed to Indian movement or Metis travel and Native or unchurched marriages no matter how stable (Friesen, 1984: 96).

Of primary importance was a person's occupation which was also closely aligned with their social position and ethnic affiliation. The administrators and functionaries of the Settlement were usually Highlanders or Orkneymen. The mid-level agriculturalists were a broad and diverse group of Highlanders, Orkneymen and retired HBC officials. At the lowest level were the hunters who were primarily of mixed blood or native.

The hiring practices and structure of the Hudson's Bay Company mirrored and further entrenched the hierarchy of the RRS. The HBC laborer system was fashioned in a rigid pyramidal hierarchy composed of three distinct parts: the "gentlemen" or managerial class, the

permanent servants, and the part-time or short-term workers (Hamilton, 1985).

There were two classes of gentlemen, commissioned and salaried gentlemen. The Chief Factor and Chief Trader were commissioned gentlemen, that is, they were share holders in the Company and received a percentage of the profits (Goldring, 1979: 23). Salaried gentlemen, on the other hand, were employed by the Company and received an annual salary. Although ranking below the commissioned gentlemen they were accorded a status well above the mass of ordinary servants. Clerks, postmasters and apprentice clerks/postmasters were all salaried gentlemen. "Apart from regulated privileges such as the right to dine with commissioned gentlemen, salaried gentlemen may be chiefly distinguished by the fact that the new commissioned gentlemen were invariably drawn from their ranks" (Goldring, 1979: 23).

The term 'servant' was used to designate all other full time employees. This large class included transport workers, general labourers, artisans and craftsmen, some fishermen, farmers and hunters and some of the lower grades of traders (Goldring, 1979: 130-131).

Part-time or short term workers were hired as necessary to do specific tasks that arose throughout the year. This class included transport labourers, farm hands and general workers (Goldring, 1979: 131). Administrative or officer level positions were held predominately by mainland Scottish and, to a lesser degree, English. In 1832, only three of the commissioned officers and four of the clerks were of mixed blood. Of special note is the fact that three of the four mixed blood

clerks were sons of important profit-sharing partners (Judd, 1980: 305-311). Prior to 1821, the servants were predominately Orcadians. After the amalgamation of the HBC and NWC increasingly more people of mixed blood were employed as servants. The HBC considered Native people in general to be inferior to Europeans, and French-speaking mixed bloods to be worse than partly British or English-speaking mixed bloods. However, after 1821, Governor George Simpson decided that the "indolent and unsteady" Metis could become suitable replacements for the increasingly expensive Orkney Scots with careful management (Sprague, 1983: 16). By 1832, approximately 20% of the servants in the HBC employ were of mixed blood; they accounted for about 50% by the end of 1850 (Judd, 1980: 311). Natives were hired by the HBC on a purely seasonal basis to fill specific roles such as boatsmen, and labourers.

The HBC clearly had an employment hierarchy with rigid divisions which tended to be mutually exclusive. This structure did not operate as smoothly as hoped for by the upper echelons of the Company. "Evidence suggests that the type of employment attained by the father indicated, more than any other single cause, the level of employment that the sons would be able to achieve in the company hierarchy" (Judd, 1980: 306). French and English speaking mixed blood sons of servants were shunted to the lower level servant positions within the company. The mixed blood sons of officers were also discriminated against by these hiring policies (Figure 2).

In a letter dated Aug. 10, 1846 to his brother John, James Sutherland wrote:

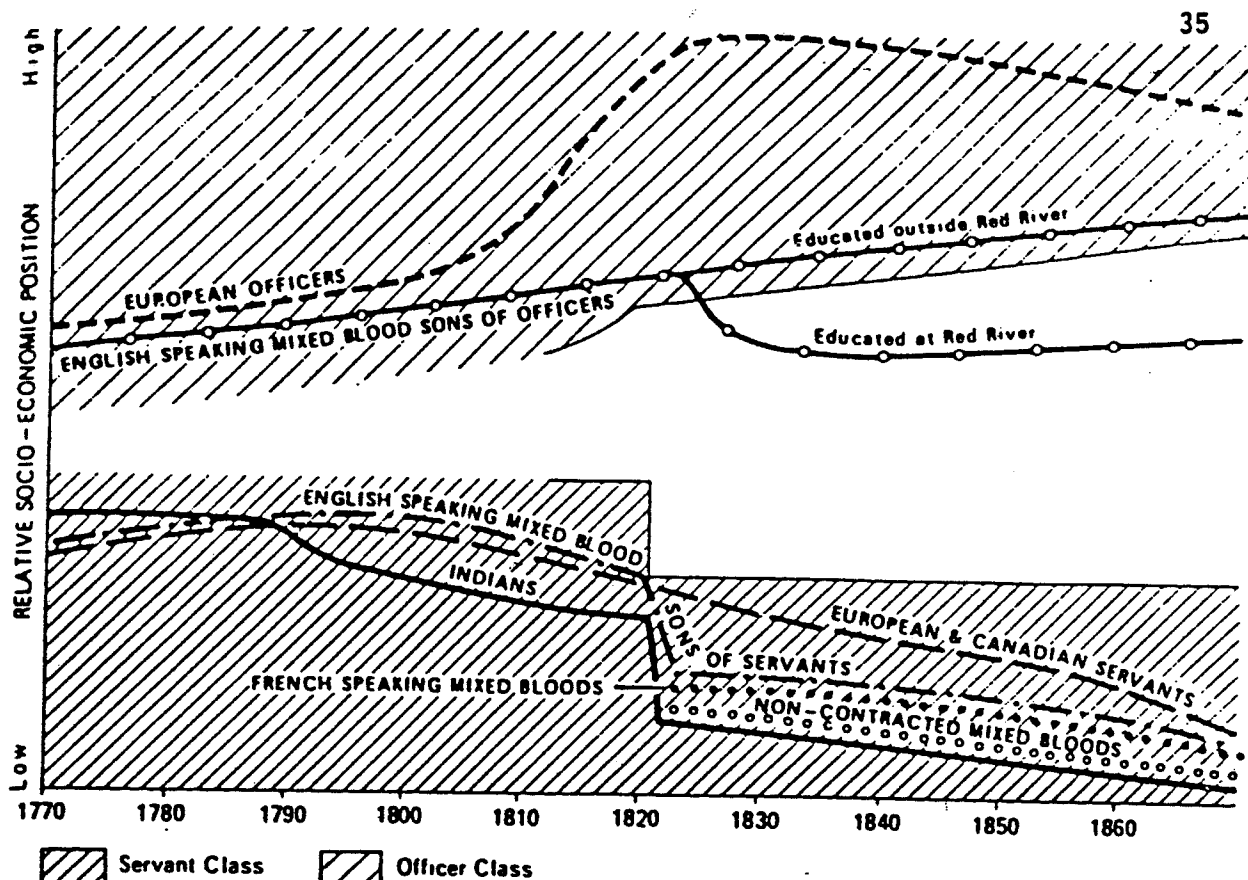


Figure 2: Relative Socioeconomic Positions in the HBC Fur Trade Hierarchy (Judd, 1980: 309)

I could get [my well-educated son] in the Cos service, but halfbreeds as they are called has no chance there nor are they respected whatever their abilities may be, by a parcel of upstart Scotchmen, who now hold the power to control in the concern (James to John Sutherland, Red River Colony, 10 Aug. 1846).

A new rank of apprentice postmaster was introduced in 1839 and formally admitted through the minutes of the Northern Council in 1844. Although not developed to accommodate local mixed bloods, during its use in the 1840s and 50s, all but one of the twenty one people appointed to the position of apprentice postmaster were identified in the engagement records as "native" and of those, nineteen were sons of chief factors

and chief traders (Judd, 1980: 312; Sprague, 1983: 20). Apprentice postmasters signed on for five years at £30 to £50 per annum if the individual was considered capable of becoming a clerk (Judd, 1980: 312).

The rank of apprentice post master clearly demonstrated the discrimination within the HBC. As stated this rank was filled almost exclusively by mixed blood sons of officers. Not only was their training period considerably longer than that of European clerks but their starting pay was significantly lower.

In protest against this rank James Anderson (1857) wrote:

These young men are generally the sons of your oldest and most faithful officers and on an average are fully as talented and well educated as the apprentice clerks from Europe and Canada and tho' they do precisely the same duty they are degraded to a lower rank, pay and allowances. This glaring injustice must-unless they be more than human beings rankle in the minds, particularly in the minds of those of high spirit and superior ability (P.A.C. James Anderson Papers MG19 A19, McKenzie River District Report 1857: 127).

As illustrated, the HBC labour system was fashioned in a rigid pyramidal hierarchy composed of three distinct parts: officer, permanent servants and part-time or short-term workers. This hierarchy was supplemented by informal ranking mechanisms characterized by criteria that measured one's male worth, country (experience in Rupert's Land), and European skills, and kinship connections (Hamilton, 1985: 26). Inherent in these criteria were prejudices, the most blatant of which were ethnicity and religion.

The HBC was undeniably the most vital economic force in the RRS. The Company was the largest employer within the community and as such its

employment hierarchy extended into the RR society. As a result "an individual's status in the community was closely related to his status in the company" (Judd, 1980: 314). In fact, the hierarchies within the HBC and RRS were structurally similar with several common defining variables such as occupation, ethnic identity and religious affiliation (Figure 3). The two hierarchies complimented each other and were interwoven at a variety of levels.

The Selkirk Colony was, for the first decade of its existence, under the direct management of Lord Selkirk. After his death in 1820, this responsibility fell into the hands of Selkirk's executors. They transferred the government of the colony's affairs into the hands of the HBC, who were able to purchase absolute rights about 12 years later (Ross, 1856: 170).

In an attempt to organize and maintain order within the growing colony, the Company imposed local regulations, courts of justice and a code of laws. A legislative council was established to make and enforce laws in both criminal and civic matters. Important members of the colony were selected as councillors with the Governor-in-chief at their head. These men, while undoubtedly being the most influential within the Settlement, were strongly associated with the Hudson's Bay Company. Table 2 lists the men who comprised the Council of Assiniboia; all were either sinecurists or paid servants of the Company (Ross, 1856: 174).

The position of "Recorder of Rupert's Land" was also created in the 1830. Judge Adam Thom was appointed Recorder by the HBC and received a salary of 700 sterling per annum. Thom fulfilled the duties of a

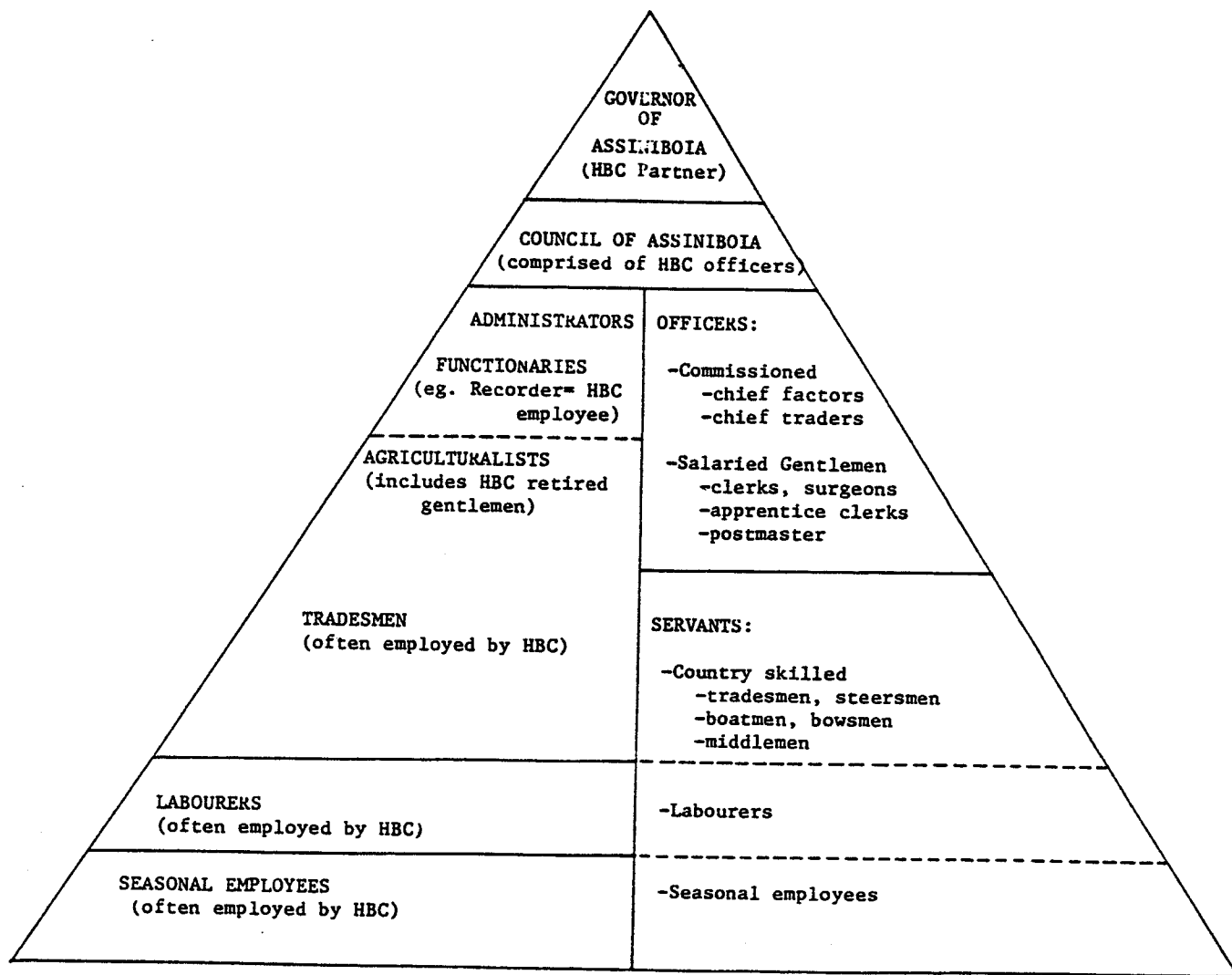


Figure 3: Comparison of RRS and HBC Organization, mid-1800s (Compiled from Hamilton, 1985, Judd, 1980, and Goldring, 1979)

TABLE 2

Constitution of the First Council of Assiniboia

President	Sir George Simpson, Governor of Rupertsland
Councillors	Alexander Christie, Governor of Assiniboine (the colony) The Right Reverend the Bishop of Juliopolis, now of the NWC The Reverend D.T. Jones, Chaplain to the Honorable HBC The Reverend William Cockran, Assistant Chaplain James Bird, esq., formerly Chief Factor, HBC James Sutherland, esq. W.H. Cook, esq. John Pritchard, esq. Robert Logan, esq. Alexander Ross, esq., Sheriff of Assiniboine John McCullum, esq., Coroner John Bunn, esq., Medical Advisor Andrew McDermot, esq., merchant Cuthbert Grant, esq., Warden of the Plains

"recorder" per se, as well as judge in the colony. The dual nature of this role and the appointment of Thom caused much concern in the colony and a number of objections were raised. Thom could not speak French, which was the language spoken by the majority of the population, and he was a paid servant of the HBC.

A man, then, placed in Mr. Thom's position, liable to be turned out of office at the Company's pleasure, naturally provokes the doubt whether he could, at all times, be proof against the sin of partiality. Is it likely he could always take that impartial view of a case that might involve in its results his own interest, or deprive him of his daily bread? (Ross, 1857: 224-225).

The structure of the RRS and HBC as outlined changed over time. The HBC was not able to maintain its control over the Settlement. With the rise of free-trade and an increase in the number of free-traders, the

Company was unable to effectively enforce rules, or to restrict and collect duty on goods. It was at this point, 1846, that the Sixth Regiment of Foot was brought from England. Alexander Christie stated the HBC reasoning in a letter to Chief Factor Donald Ross at Norway House:

If we succeed in getting a garrison established at RR, we shall be able to put down the illicit trade and keep the settlers in order, but nothing must be said about it until we are quite certain of it (Guinn, 1980: 72).

The Sixth Regiment was used to maintain law and order and to limit free trade. "In this capacity, the military was an appendage of the top levels of the Company hierarchy and stood in a social position immediately under the Company's Governor and above the settlement population" (Monks, 1983: 5). In fact the Colonel Ffolliott Crofton, Commanding Officer of the Sixth Regiment, acted as the Governor of Assiniboia (Ross, 1856: 364).

2.3 THE SIXTH REGIMENT OF FOOT

By-in-large, Upper Fort Garry was an isolated centre. It was fifteen hundred miles from the nearest city in the east, and six hundred miles from any other outlet to the rest of the world (MacLeod, 1949: 5).

The fort's remoteness became even more evident in the 1840s when problems began to arise. Trouble was brewing with the Metis over the rights to free trade and the threat of war with the United States over the Oregon boundary dispute was a reality.

As a solution to this problem, British troops were sent to the Red River Settlement. The Sixth Regiment of Foot was dispatched in 1846 and consisted of one field officer, three captains, three lieutenants, three ensigns, one assistant surgeon, fifteen non-commissioned officers, six drummers and 270 rank and file, with the usual proportion of Women and children (Morrison, 1970: 169).

Major John Ffolliott Crofton was selected to command the detachment. The troops left from Cork on June 26, 1846 for the Hudson Bay. They arrived at York Factory on August 8, but did not arrive at Lower Fort Garry until the middle of September. Major Crofton preceded the troops to the lower fort and left just a couple of days afterwards to move onto Upper Fort Garry, where headquarters were to be established (Morrison, 1970: 170-171). The Force was divided in two. The smaller part of the force stayed at Lower Fort Garry, while the remaining officers and men moved on to Upper Fort Garry (Ingersoll, 1945: 15-16).

At the Upper Fort, a fence was installed down the middle, creating two separate areas. The east side of the fort being used by the Hudson's Bay Company; the west by the Sixth Regiment. "The warehouses along the west wall were turned into barracks, and the four stone bastions were used respectively as a guard room, an engineer's office and store, a sutler's shop and a magazine. The jail outside the walls, was turned into a hospital, and two buildings, 60 by 30 were put up to the north of the fort as additional barracks"(Ingersoll, 1945: 16).

The Sixth Regiment was well received by the Red River community. The addition of over 300 people expanded the local population, thereby

increasing the size of the local market significantly. This created a much needed outlet for the surplus of agricultural food produced by the farmers.

Chapter III

METHODOLOGY

3.1 ARCHAEOLOGICAL EXCAVATIONS

In 1978 and 1979, the City of Winnipeg and the Downtown Association sponsored two brief test excavations around the palisades and rear gateway of Upper Fort Garry. Parks Canada tested two areas of the gate: "the roadway through the gate and a section of the north palisade of the fort, east of the gate" (Priess, 1980: 2). Their primary objective was to discern structural information about the fort. Excavations revealed that the gate was constructed with only a partial foundation.

One footing was discovered under the southeast corner ... It appears reasonable to suggest that similar footings were installed for all four corners of the gate ... The gate had wooden gates hung on three strap hinges and on the ground below the wooden gates there was a wooden sill (Priess, 1980: 13).

Excavated evidence provided little information regarding the construction of the palisade. Detailed documentary accounts indicate that

the palisade was a rubble-filled cribbing of horizontal logs. Illustrations show a stone base for the palisade ... [which] was built on the ground. A stone below ground foundation for the palisade was present only adjacent to the gate wall (Priess, 1980: 13).

Artifacts recovered were assignable to a post-occupational period, dating from the late nineteenth century up to recent times.

The 1979 excavations, conducted by Michael Kelly, were designed to "identify and determine the full nature of the archaeological resources within the park's boundary" (Kelly, 1981).

A series of ten contiguous 2 by 3 m excavation units were laid out straddling the projected centerline of the palisade ... Two more units (1x3m and 2x3m) were excavated in the former compound interior immediately south of the palisade line where the building listed as the general department on the HAZEL map of 1876 was located (Kelly, 1981).

No posts or post molds were identified; foundation remains belonging to the General Department building were uncovered in the units located within the compound interior (Kelly, 1981). Approximately four thousand artifacts were recovered. Based on a preliminary analysis, the majority appear to date from the late nineteenth century to the present - a post-occupational period.

In order to learn more about the fort, further excavations were conducted in the only other accessible area of the fort, namely the northeast corner of Bonnycastle Park (Figure 4). This park is located at the southwest corner of Main Street and Assiniboine Avenue. Unfortunately, the remainder of the fort lies under Main Street, Assiniboine Avenue, the Fort Garry Curling Rink, 100 Main Street, and a city parking lot.

Archaeological work at Bonnycastle Park began in 1981 and was continued during 1982 and 1983 (Figure 4). All work was done under the direction of Dr. Greg Monks. The crews employed were comprised primarily of graduate and undergraduate students from the Universities of Manitoba and Winnipeg.

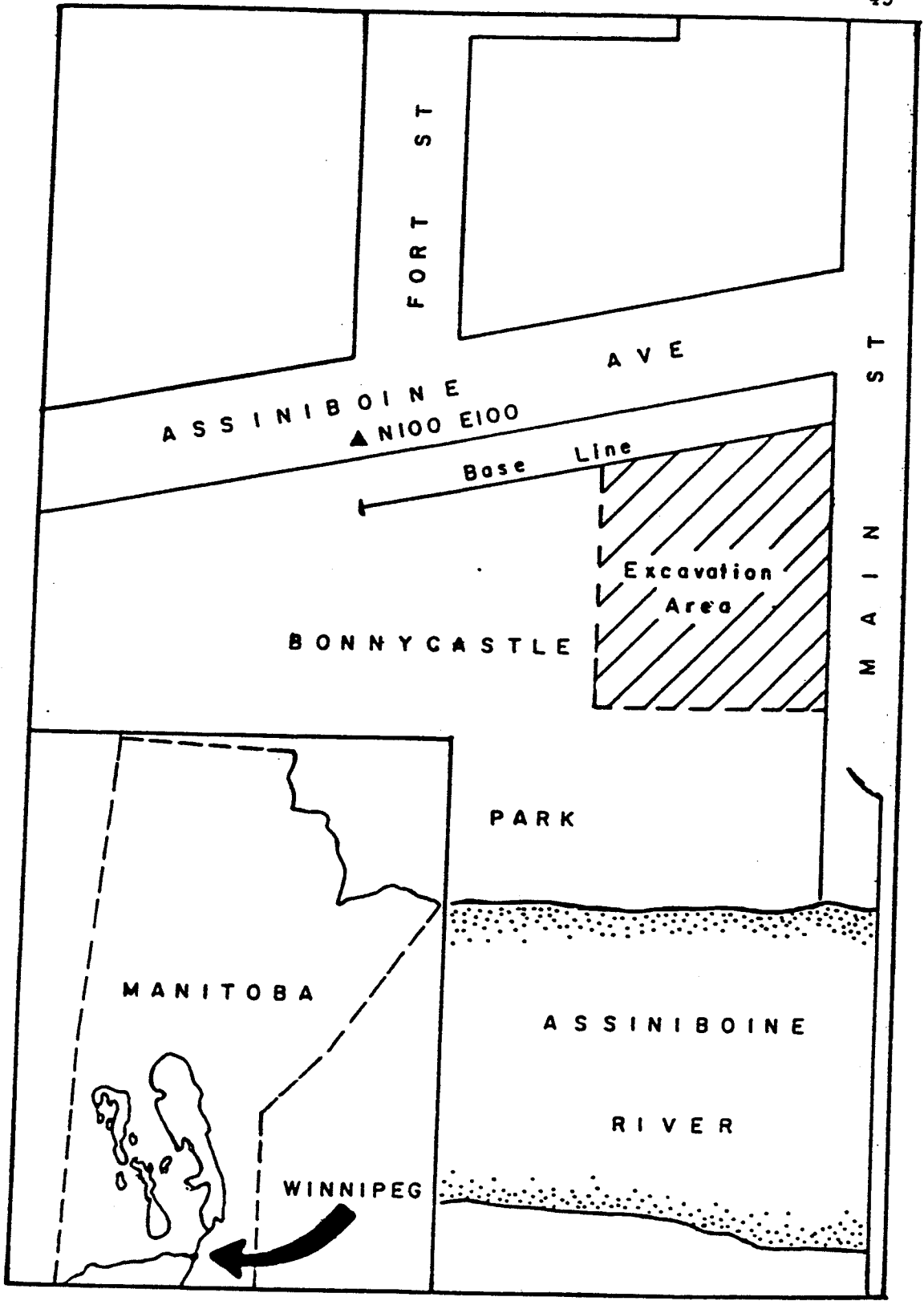


Figure 4: The Upper Fort Garry Site (DILg-21)

A three-dimensional grid reference system was used throughout the three-year period.

Horizontal measurements were taken from the City of Winnipeg's special survey pin on the south side of Assiniboine Avenue at the foot of Fort Street. This pin was assigned the location N100 m, E100 m, so that all measurements on the site were taken in terms of north and east coordinates. Vertical control ... [was] established in metres ASL according to the 232.203 m ASL elevation of the brass Geodesic Survey plug in the pumphouse foundation in the southeast corner of the park (Monks, 1983: 4).

Metre square units were surveyed in by transit and labelled by the coordinates of the northeast corner (Monks, 1982: 33). Units were shovel-shaved to remove the overburden (twentieth century fill). The cultural strata were trowelled. Soil samples were taken from each unit and were waterscreened in the field using a one-quarter inch mesh screen and a garden hose (Monks, 1982: 33). Artifacts recovered were individually measured in from the northeast corner of the units.

The excavations in Bonnycastle Park uncovered the foundation of the fort's west wall, the foundation of a large building inside the fort, and two privy/refuse pits (Figure 5). The west wall of the fort was exposed in the 1982 excavations and was expanded upon in 1983. It ran in a continuous alignment from the excavated units N95 m to N177 m (Monks, 1983: 34-35). The foundation of the wall "was composed of large cobbles and boulders, both limestone and granite, held together by mortar. The foundations measured 3' wide by 18" deep and were laid in a trench dug into the ground" (Loewen and Monks, 1988: 21).

The three walls of the building foundation uncovered

rested on a foundation of similar materials and width [to the fort wall] but, inexplicably, was twice as deep (i.e. 3'). Three wooden beams appear to be floor joists supported by

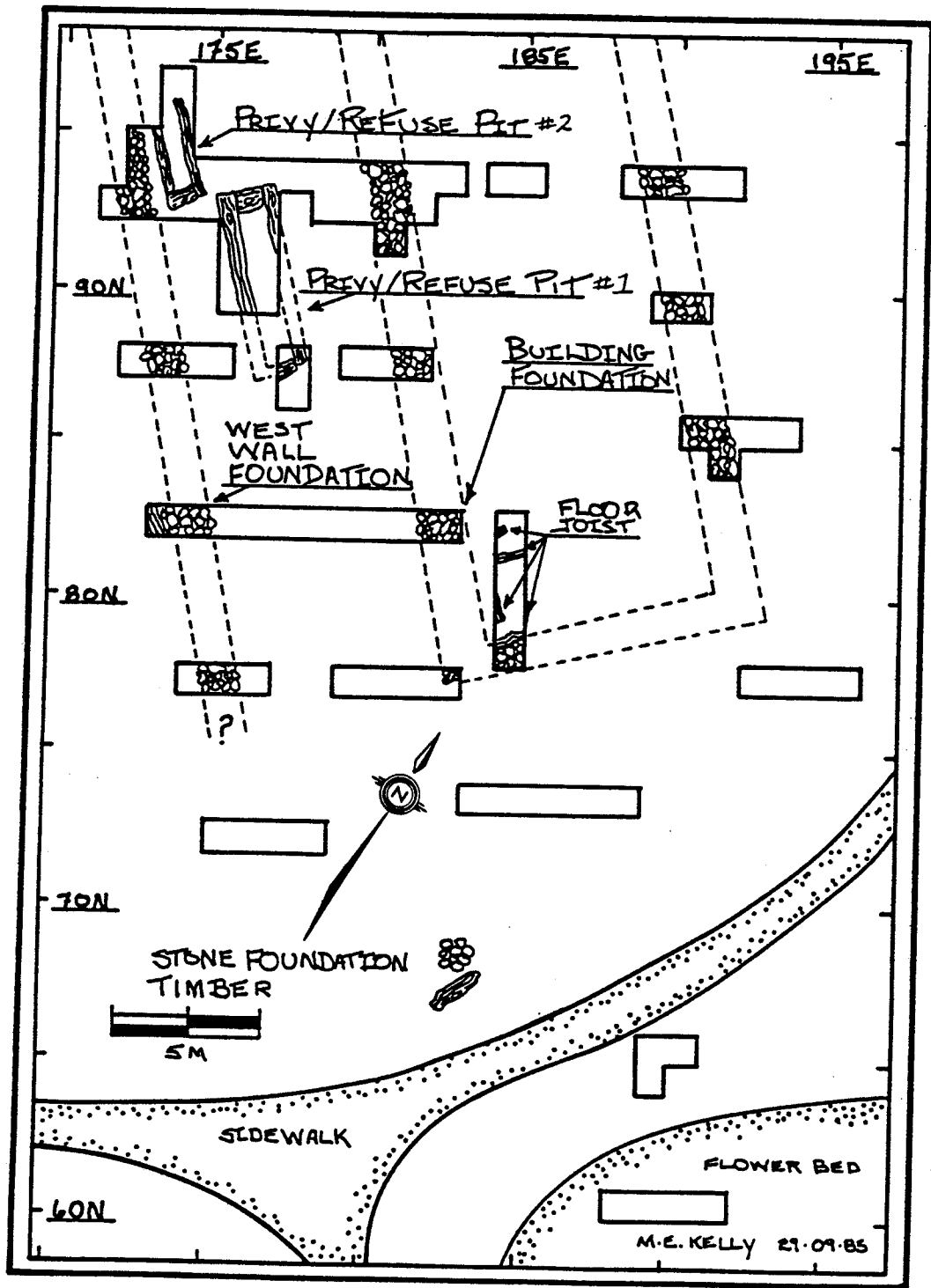


Figure 5: Plan View of Excavations Showing Location of Privies

rocks and mortar. There was a distance of c. 109.5 cm between each beam, an interval approximating the archaic measure known as the English or cloth ell (45 in.) (Monks, 1983: 37).

The two privy refuse pits were an exciting discovery. The larger pit measured approximately 10' x 6' x 5'3" (3m x 1.8m x 1.6m). It was cribbed with hand-hewn oak beams. The northeast corner

was made by chopping the end of each log to form a tenon ... An effort seems to have been made to fashion tenons that sloped down and out from the building. The purpose of this method of construction was to allow any water to run out of the corner of the building, thereby helping to keep the interior dry and the corner from decomposing rapidly (Monks, 1982: 53).

The second pit was narrower and shallower. It too was cribbed with oak beams to prevent dumpage, but these beams were sawn. Both structures yielded a brown organic matrix that is unquestionably manure. Chemical tests indicate that at least some of it is human, confirming the use of the structure as a privy. The large amounts of artifactual remains suggests a dual purpose of the structures as refuse pits as well (Monks, 1982: 23).

3.2 DATING

The privies were dated using a variety of materials: ceramics, glass, newspaper, and textiles. The results are thoroughly discussed by Gail Fifik (1986); a brief summary is presented here. In this discussion, the four artifact classes used in this analysis are considered separately using a variety of methods. Following this analysis, the results are compared with each other and assessed as to reliability. The privies were also dated separately for comparative purposes, but the dates for both range from as early as the 1820s to as late as the 1900s.

Ceramics were dated according to the production dates of the patterns. These dates were arrived at using South's mean ceramic date method (1978, 1979). Based on the ceramic patterns an initial date of 1839.8 and a terminal date of 1874.8 were suggested for Privy 1. The dates suggested from Privy 2 were 1832.4 (initial) and 1866.1 (terminal). However, problems exist with this technique. The minimum number of vessels represented by the fragments was not calculated and vessel types were not distinguished. This could skew the results by affecting the weighting factor. Also, no dates were identified for one pattern 'crenulated' found exclusively in Privy 2 and making up nineteen percent of that sample.

Although neither privy was totally excavated, a difference in frequency of ceramic artifacts recovered was noted, suggesting that there were depositional differences. It is hypothesized on the basis of this frequency that Privy 2 was used by the lower ranks of the army (privates) while Privy 1 was used by the higher ranks (officers, sergeants, and corporals with families). Metal plates and cups were probably used by the military personnel of the Sixth Regiment of Foot (1846-1848) (Sussman, 1979b: 191). Commissioned officers used ceramic dishes (Sussman, 1979b: 191). "At Upper Fort Garry, it would be expected that the officers, and sergeants and corporals with families also had their own ceramic dinner services" (Fifik, 1986: 70).

It was not possible to correlate the dates of ceramic patterns with above sea level (ASL) depths and stratum due to depositional factors which have resulted in the stratigraphic mixing of artifacts. This

could have been caused by both natural and human depositional factors, such as artifact use, reuse, and discard; cleaning of the privy; dumpage of material; frost heaving; and rodent activity (Fifik, 1986: 82).

The manufacturer's marks on the ceramics were also used in dating the privies. Dates ranged from 1833 to 1867. The correlation of the dates of ceramic manufacturer's marks with ASL and stratum was more successful in that the earliest manufacturer's mark was found at the lowest ASL for Privy 1.

Glass artifacts were dated according to their mode of manufacture and gave dates ranging from 1820 up to the twentieth century (Fifik, 1982: 92). Glass was also mixed by ASL and by strata in each privy.

Newspapers provided the tightest and most consistent dating. A variety of newspapers was recovered from Privy 1. Included were the Times (of London), the Montreal Gazette, the New York Times, and a paper from the Isle of Man. All of them dated to 1846 and 1847. The newspaper remains from Privy 2 were in poor condition. Only one fragment from a newspaper or leaflet was found bearing a date, 1880. This evidence supports the hypothesis that Privy 1 was in use when the Sixth Regiment of Foot was garrisoned at Upper Fort Garry from 1846 to 1848, but would suggest that Privy 2 was used later.

The textile evidence for dating is scanty. Based on the patterns and the scarcity of machine stitching, most appear to have been made during the first half of the nineteenth century.

The fibre and vermicelli pattern of one fragment (DILg-21/6006) may be a copy in fabric of both ceramic patterns. The vermicelli ceramic pattern itself is dated from

1828-58 (Sussman, 1979: 93). The fancy silk monochrome pattern (DILg-21/5515) is reminiscent of patterns from the French and English silk mills circa 1800-50 (Fifik, 1986: 90).

Two fragments were found in Privy 1 which were definitely associated with the Sixth Regiment of Foot (1846-1848). Two cotton fragments, possibly shirts, have names stamped on them: "W. Stokes" and "C. Fidds." Both are listed on the payroll sheets as privates (WO12/2415-2417) (Fifik, 1986: 90).

The historical evidence can be used to refine the dates suggested by the artifacts. The fort was constructed in 1836 and was demolished in 1882. Thus, artifacts which might predate the construction of the fort are probably a reflection of reuse and curation (Fifik, 1986: 92).

The four artifact classes yielded varying dates for the two privy/refuse deposits. The artifactual evidence, namely the newspapers, appears to support the hypothesis that Privy 1 was in use during the late 1840s, possibly when the Sixth Regiment of Foot was in residence at the Fort. It is harder to pinpoint the date of Privy 2's existence. Following Fifik's analysis, it appears to post-date Privy 1 and the Sixth Regiment's occupation of the Fort. However, in a ceramic analysis by Larcombe (1988), the opposite was suggested (i.e. Privy 2 predates the arrival of the military). Because Fifik's analysis is on a broader scale, encompassing more artifact classes of data, her results are being used in this thesis. Hence it is hypothesized that Privy 1 was in use during the occupation of the Fort by the Sixth Regiment of Foot and that Privy 2 is post-military.

Special note should be made of references in the historic literature which indicate that privies were periodically cleaned out. For example, at Fort Wellington "it appears that the pits were regularly cleaned out ... In between, the latrines were regularly treated with lime to help reduce the odor" (Carter-Edwards, 1986: 8).

The latter process was practiced at Upper Fort Garry. During the excavation of the structures, lenses of ash and lime were encountered several times. The archival documents relating to the fort refer to a number of privy structures having been built along the west wall of the fort (Loewen and Monks, 1986: 40). This suggests perhaps that when faced with the dilemma of emptying them or covering them over and moving the latrines elsewhere, the latter option was selected. Thus the artifacts and the bones recovered from the privies probably reflect a relatively short-term deposit.

3.3 ARCHAEOLOGICAL DATA AND ORGANIZATION

The faunal material discussed in the following thesis was recovered during the 1982 field season from the two privy/refuse deposits at Upper Fort Garry. Bones from the 1981 collection were recovered primarily from post-occupational fill layers and were thus of little significance to this study. The 1982 collection provided a sample of over four thousand bones, approximating seventy-five percent of the total number of bones recovered from all excavations conducted (1981-1983). Statistically, this represented a more than adequate sample for analytical purposes. Random sampling was not necessary because the sample size was greater than fifty percent.

The bones were identified using the faunal collections at the Universities of Manitoba and Toronto, as well as the Manitoba Museum of Man and Nature and the Royal Ontario Museum. All bones were identified to the smallest taxonomic unit possible. This information was coded according to the Parks Canada manual (1982) and stored on a computer file (Appendix A). The variables examined for each bone were locational information including site, unit, level, stratum, ASL, north provenience and east provenience; animal class; taxon; anatomical element; portion of element; segment of portion; weight; side; fusion; eruption; burn; juvenile cortex; break; butchering type; and flake.

A separate file card system was kept for those bones which had been butchered. Variables noted were bone segment, type of butchering marks, and exact location of the butchering marks on the bone.

All of the above variables allow the sample to be analyzed quantitatively to identify species used as food sources. It is also possible to identify parts preferred and to equate these with types of butchered meat cuts (short ribs, rump roast, blade steak, for example). Relative meat costs were obtainable through the archival sources and historic documents. Using these prices in conjunction with the faunal data the economic value of the sample is assessable.

3.4 NATURE OF THE PRIVY DEPOSITS

Before starting the analysis of the faunal remains from the two privies, it must be explained that several assumptions have been made. Firstly, it is assumed that different groups had different privies. At Fort Wellington, studies of the latrines built in 1838/1839 indicate that the structure had "three separate compartments, each with their own entrance: the men's privy, the women's privy, and the officers' privy" (Carter-Edwards, 1986: 1). These compartments varied reflecting the social life within the British army in the mid-1800s. The men's privy was characterized by an obvious lack of privacy. Their latrine consisted of a bench along a wall "with a series of wooden rungs on which they perched rather than sat on a flat wooden surface with a hole cut out" (Carter-Edwards, 1986: 3). The women's latrine was divided by partitions from the men's and officers' latrines. The interior had been white-washed. The women had a flat, finished seat, with probably two holes cut out allowing semi-private accommodations (Carter-Edwards, 1986: 5).

The officers' latrine was similar to the women's latrine except that there was only one hole in the flat, finished seat, providing complete privacy. The interior was white-washed and "ventilation was provided to each cubicle by means of a window-situated on a sliding track which enabled it to be opened or closed" (Carter-Edwards, 1986: 6).

A similar arrangement was found to exist at the Dauphine Latrines in Artillery Park, Quebec City. Although the latrines were built with the same exterior design and of the same construction materials, the

interior layout differed depending upon for whom they were constructed (Deslauriers, 1984: 6-7).

For privates and their wives, no effort was made to indicate the position of the seats, between which there was certainly no partition. The non-commissioned officers seem to have been more at ease in smaller, partitioned buildings, providing them with greater privacy (Deslauriers, 1984: 6-7).

It would appear plausible to assume that at Upper Fort Garry different groups had different privies. For example, the military and the HBC probably had their own mutually exclusive privies, and within these groups and privies, there were further subdivisions based on position and status.

Secondly, based on the dating of artifacts recovered from the privies it is hypothesized that Privy 1 predates Privy 2.

Thirdly, because of the presence of military related artifacts (buttons, material with soldier's name, and the presence of newspapers dating to the late 1840s, for example), it is believed that Privy 1 was used by the military personnel. Privy 2 dates to a later time period, one which is post-military. Thus it may have been used by either the military or by other residents of the fort (HBC employees).

Fourthly, knowing the importance of the fort, the military, and the fort's inhabitants, it is assumed that the artifacts comprising the privy deposits reflect an upper class diet.

Chapter IV
FAUNAL ANALYSIS

4.1 INTRODUCTION

In total, 4842 specimens have been catalogued and analyzed. On the whole the bones reflect good preservation. The sample consisted of 1955 mammalian, 494 avian, 1677 osteichthyes, 132 molluscan and 584 unanalyzable elements (Table 3). Approximately twenty percent (20.83%) of the sample was identified to order or a smaller taxon (Table 4). Fish scales numbered 1042 and ranged from poor to good condition. The scales were not included in the analysis because of limited access to a complete comparative collection. It was also assumed that the large sample of fish bones would be representative of the fish species utilized as food resources.

Faunal material was recovered from forty units during the 1982 excavations. The majority of the faunal remains were located within the two privy/refuse pits. Privy 1 yielded 46.37% of the total sample from six units: N90 E177, N91 E176, N91 E177, N92 E177, N94 E176, and N93 E177. Privy 2, on the other hand, yielded 25.90% of the total assemblage from five units: N93 E174, N94 E174, N94 E175, N96 E174, and N97 E174.

TABLE 3

Faunal Findings by Zoological Class

Class	Total Faunal Sample	Percentage of Total Faunal Sample
Mollusca	132	2.73 %
Osteichthyes	1677	34.63
Reptilia	0	0.00
Amphibia	0	0.00
Aves	494	10.20
Mammal	1955	40.38
Class uncertain	584	12.06
Total	4842	100.00

TABLE 4

Elements Identified to Order or Smaller Taxon

Class	No. Excavated Faunal Elements	No. Excavated Elements Identified	% Total Faunal Sample Identified
Mollusca	132	4	.08 %
Osteichthyes	1677	214	4.42
Amphibia	0	0	0.00
Reptilia	0	0	0.00
Aves	494	281	5.80
Mammalia	1955	510	10.53
Class Uncertain	584	0	0.00
Total	4842	1009	20.83%

The remaining 27.73% of the total faunal assemblage was recovered from units outside of the two structures. Of these, 95.5% was found within the fill layers (Stratas 1-3). The 58 bones which were found below the fill were contained within the Paleosol strata. These bones may simply represent general discard at the fort or may be indicative of earlier native occupations. No domesticates were represented by these bones and there was no indication of human alteration (charring or butchering, for example).

The two privy/refuse pits were studied individually, as separate deposits. Newspapers dated to 1845 and 1846, plus the recovery of an 1846 coin, suggest that Privy 1 dates to the late 1840s. This is the time period in which the Sixth Regiment of Foot was stationed at Upper Fort Garry. Artifacts from Privy 1 such as pieces of cloth and a brass medallion with Sixth Regiment markings suggest that this privy was used by the military and that the deposits relate directly to the occupation of the fort by the Sixth Regiment (Monks, 1981: 26).

Artifacts from Privy 2 date to a later time period, one which is possibly post-military. Thus it may have been used by either the military or by other residents of the Fort (HBC employees, for instance).

4.2 PRIVY 1

The sample consisted of 775 mammalian, 324 avian, 748 osteichthyes, 13 molluscan and 185 unanalyzable elements.

A high moisture content in the soil, beginning at or near the top of the first log structure (231.50 m ASL) provided an anaerobic environment in which normally perishable organic remains were preserved (Monks, 1983: 25).

Because of this excellent preservation, differential bone deterioration should not be a factor.

4.2.1 Mammalian Elements

Mammalian remains dominate, comprising 43.12% of the Privy 1 fauna. Of the 975 elements, 420 (43.02%) were identifiable to a zoological taxon below class (Table 5). Unidentifiable mammal bones were sorted according to size, where possible. Bones from animals smaller than white-tailed jack rabbit were classed as small mammals; bones from animals larger than a rabbit but smaller than a wolf were classified as medium mammals; and bones from animals larger than a gray wolf were classified as large mammals.

In total, there were twelve taxa represented, belonging primarily to two orders, Artiodactyl and Lagomorpha. Within the Artiodactyl order the Cervid family is minimally represented. Elements belonging to the Bovid family comprise 24.21% of the sample. Thirty sheep bones were positively identified. The term 'sheep-goat' was used when a positive identification could not be made.

TABLE 5

Mammalian Element Identification, Privy 1

Species	No. of elements (422) identif. to zoolog. taxa below class	% total Mamm. elem. identif. to zoolog. taxa below class	% total (975) excavated Mammal elements
<u>Homo sapiens</u> Linnaeus (Man)	1	.2	.1
Leporidae sp.	14	3.3	1.4
<u>Lepus</u> sp.	8	1.9	.8
<u>Lepus americanus</u> Erxleben (Snowshoe Hare)	43	10.2	4.4
<u>Canis</u> sp.	1	.2	.1
<u>Vulpes vulpes</u> (Linnaeus) (Red Fox)	69	16.4	7.1
Artiodactyl sp.	8	1.9	.8
Cervidae sp.	1	.2	.1
Bovidae sp.	153	36.3	15.7
<u>Bison bison</u> (Linnaeus) (Bison)	6	1.4	.6
<u>Bos tauros</u> (Domestic Cow)	29	6.9	3.0
<u>Capra/Ovis</u> sp. (Goat/Sheep)	2	.5	.2
<u>Capra hircus</u> (Domestic Goat)	16	3.8	1.6
<u>Ovis aries</u> (Domestic Sheep)	30	7.1	3.1
<u>Sus scrofa</u> (Domestic Pig)	39	9.2	4.0
<u>Antilocapra americana</u> (Ord) (Pronghorn)	1	.2	.1
<u>Equus caballus</u> (Domestic Horse)	1	.2	.1
SUBTOTAL	422	99.9	43.2
Large mammal sp.	271		27.8
Medium/Large mammal sp.	104		10.7
Medium mammal sp.	69		7.1
Small/Medium mammal sp.	23		2.4
Small mammal sp.	4		.4
Mammal sp.	82		8.4
TOTAL	975		100.0

Nearly five times as many cow elements were identified as opposed to bison bones. Olsen (1977) was used to distinguish between the two species; where doubt existed the bone in question was assigned to the Bovid taxa. Other than cow, the only domesticates included in the sample were pig and horse. Pig made up four percent of the sample, horse was represented by a single bone.

Four wild species in addition to bison were identified in the sample. Pronghorn and Cervid (elk/moose) were only minimally represented, 69 red fox bones were recovered, but they are primarily skull bones from one individual, and the Leporidae family comprised 6.67% of the mammalian elements.

4.2.2 Avian Elements

Avian elements comprise 14.3% of the Privy 1 sample, 25% being assignable to one of 15 taxa (Table 6). Water birds (herons, geese and ducks) account for 20.04% of the elements. While the faunal sample was highly identifiable, insufficient comparative faunal collections prohibited identification beyond family in most cases.

The highest percentage of the avian collection belongs to the Tetraonidae family. Chicken elements were the most numerous, followed by Sharp-tailed grouse. Where uncertainty existed, the element was classed as Tetraonidae sp.

The presence of three avian species included in this sample is of interest. Ten percent of the avian collection belongs to the Corvidae

TABLE 6

Avian Element Identification, Privy 1

Species	No. of elements (248) identif. to zoolog. taxa below class	% total Avian elem. identif. to zoolog. taxa below class	% total (324) excavated Avian elements
Ardeidae sp.	1	.4	.3
Anseriformes sp.	4	1.6	1.2
Anatidae sp.	20	8.1	6.2
<u>Olor columbianus</u> (Ord) (Whistling Swan)	1	.4	.3
Anserinae sp.	4	1.6	1.2
<u>Branta canadensis</u> (Linnaeus) (Canada Goose)	5	2.0	1.5
<u>Chen caerulescens</u> (Linnaeus) (Snow Goose)	5	2.0	1.5
Anatinae sp.	5	2.0	1.5
<u>Anas</u> sp.	1	.4	.3
<u>Anas platyrhynchos</u> Linnaeus (Mallard)	13	5.2	4.0
<u>Mareca americana</u> (Gmelin) (American Widgeon)	1	.4	.3
<u>Aix sponsa</u> (Linnaeus) (Wood Duck)	5	2.0	1.5
Galliformes sp.	3	1.2	.9
Tetraonidae sp.	23	9.3	7.1
<u>Pedioecetes phasianellus</u> (Linnaeus) (Sharp-tailed Grouse)	10	4.0	3.1
<u>Gallus gallus domesticus</u> (Domestic Chicken)	82	33.1	25.3
<u>Meleagris</u> sp.	1	.4	.3
<u>Grus</u> sp.	2	.8	.6
<u>Grus americana</u> (Linnaeus) (Whooping Crane)	1	.4	.3
Scolopacidae sp.	10	4.0	3.1
<u>Ectopistes migratorius</u> (Linnaeus) (Passenger Pigeon)	10	4.0	3.1
Passeriformes sp.	8	3.2	2.5
Corvidae sp.	16	6.5	4.9
<u>Corvus</u> sp.	1	.4	.3
<u>Corvus brachyrhynchos</u> Brehm (American Crow)	16	6.5	4.9
SUBTOTAL	248	99.9	
Large bird sp.	1		.3
Medium/Large bird sp.	11		3.4
Medium bird sp.	43		13.3
Small/Medium bird sp.	7		2.2
Small bird sp.	1		.3
Bird sp.	13		4.0
TOTAL	324		99.7

family (crows/raven). Were these birds eaten as food items? Or were the occupants of the fort simply removing a nuisance by killing them? The inclusion of very small birds (Passiforms) must also be questioned. Of special note are the ten passenger pigeon bones. This species is now extinct.

4.2.3 Osteichthyes

One third of the Privy 1 faunal assemblage is made up of fish elements (Table 7). Thirteen taxa are represented, all of which are locally available, and all are generally considered highly edible. The most numerous species are walleye, sucker, goldeye, and whitefish. Three quarters of the fish elements were unidentifiable. This was due to the type of elements recovered (spines and rays) and insufficient comparative faunal collections.

TABLE 7

Osteichthyes Element Identification, Privy 1

Species	No. of elements (184) identif. to Zoolog. taxa below class	% total Fish elem. identif. to zoolog. taxa below class	% total (748) excavated Fish elements
<u>Coregonus</u> sp.	10	5.4	1.3
<u>Coregonus artedii</u> Lesueur _ (Lake Herring)	2	1.1	.3
<u>Coregonus clupeaformis</u> (Mitchell) (Lake Whitefish)	21	11.4	2.8
<u>Hiodon alosoides</u> (Rafinesque) (Goldeye)	24	13.0	3.2
<u>Cyprinus carpio</u> Linnaeus (Carp)	4	2.2	.5
<u>Catostomus</u> sp.	4	2.2	.5
<u>Catostomus catostomus</u> (Forster) (Longnose Sucker)	16	8.7	2.1
<u>Catostomus commersoni</u> (Lacepede) (Whitenose sucker)	22	12.0	2.9
Ictaluridae sp.	1	.5	.1
<u>Ictalurus</u> sp.	1	.5	.1
<u>Ictalurus punctatus</u> (Rafinesque) (Channel Catfish)	1	.5	.1
<u>Percopsis omiscomaycus</u> (Walbaum) (Trout-perch)	1	.5	.1
Perciformes sp.	1	.5	.1
Percidae sp.	3	1.6	.4
<u>Perca flavescens</u> (Mitchell) (Yellow Perch)	1	.5	.4
<u>Stizostedion</u> sp.	1	.5	.1
<u>Stizostedion vitreum</u> (Mitchell) (Walleye)	70	38.0	9.4
<u>Aplodinotus grunniens</u> Rafinesque (Freshwater Drum)	1	.5	.1
SUBTOTAL	184	99.6	24.2
Fish sp.	564		75.4
TOTAL	748		99.6

4.3 PRIVY 2

The number of faunal remains recovered from Privy 2 is substantially smaller than from Privy 1. The diversity of species is also not as great.

4.3.1 Mammalian Elements

Mammal remains comprise 25.54% of the sample. Only 15.77% was identifiable to a zoological taxa below class. However, the same trends as were seen in Privy 1 prevail. Domesticates dominate the sample with Bovidae elements being the most numerous. Only two bison elements and fourteen snowshoe hare elements were identified. These two are the only "wild" species included in the sample.

TABLE 8
Mammalian Element Identification, Privy 2

Species	No. of elements (50) identif. to zoolog. taxa below class	% total Mamm. elem. identif. to zoolog. taxa below class	% total (317) excavated mammal elements
<u>Homo sapiens</u> Linnaeus (Man)	2	4.0	.6
Leporidae sp.	1	2.0	.3
<u>Lepus americanus</u> Erxleben (Snowshoe hare)	14	28.0	4.4
Artiodactyl sp.	3	6.0	.9
Bovidae sp.	13	26.0	4.1
<u>Bison bison</u> (Linnaeus) (Bison)	2	4.0	.6
<u>Bos taurus</u> (Domestic cow)	5	10.0	1.6
<u>Ovis aries</u> (Domestic sheep)	3	6.0	.9
<u>Sus scrofa</u> (Domestic pig)	7	14.00	2.2
SUBTOTAL	50	100.00	15.6
Large mammal sp.	78		24.6
Medium/Large mammal sp.	24		7.6
Medium mammal sp.	5		1.6
Small/Medium mammal sp.	5		1.6
Mammal sp.	155		48.9
TOTAL	317		99.9

4.3.2 Avian Elements

Only sixty-four avian elements were recovered from Privy 2; of these only eighteen were identifiable to a zoological taxa below class. Once again, waterfowl and chicken/grouse elements were the most numerous.

TABLE 9
Avian Element Identification, Privy 2

Species	No. of elements (18) identif. to zoolog. taxa below class	% total Avian elem. identif. to zoolog. taxa below class	% total (64) excavated Avian elements
<u>Anas</u> sp.	4	22.2	6.3
<u>Anas platyrhynchos</u> Linnaeus (Mallard)	6	33.8	9.4
Tetraonidae sp.	1	5.5	1.6
<u>Gallus gallus domesticus</u> (Domestic chicken)	5	27.7	7.8
<u>Grus</u> sp.	1	5.5	1.6
<u>Coccyzus</u> sp.	1	5.5	1.6
SUBTOTAL	18	100.2	28.3
Large bird sp.	27		42.2
Medium/Large bird sp.	5		7.8
Medium bird sp.	4		6.3
Bird sp.	10		15.6
TOTAL	64		100.2

4.3.3 Osteichthyes Elements

Fish elements dominate the sample. However, of the 774 elements recovered, only 54 were identifiable to one of seven taxa. The most numerous were Coregonus sp., Ictalurus sp., and Hiodon sp. All were available locally.

TABLE 10

Osteichthyes Element Identification, Privy 2

Species	No. of elements (65) identif. to zoolog. taxa below class	% total Fish elem. identif. to zoolog. taxa below class	% total (800) excavated Fish elements
Coregonidae sp.	18	27.7	2.3
<u>Coregonus artedii</u> (Lesueur) (Lake Herring)	6	9.2	.8
<u>Coregonus clupeaformis</u> (Mitchell) (Lake Whitefish)	9	13.8	1.1
Hiodon sp.	1	1.5	.1
<u>Hiodon alosoides</u> (Rafinesque) (Goldeye)	8	12.3	1.0
Catostomidae sp.	1	1.5	.1
<u>Ictalurus</u> sp.	1	1.5	.1
<u>Ictalurus nebulosus</u> (Lesueur) (Brown Bullhead)	10	15.4	1.3
<u>Perca flavescens</u> (Mitchell) (Yellow Perch)	4	6.2	.5
<u>Stizostedion vitreum</u> (Mitchell) (Walleye)	7	10.2	.9
SUBTOTAL	65	99.9	9.1
Fish sp.	735		91.9
TOTAL	800		100.0

4.4 BUTCHERING

Ten percent of the total sample (Privies 1 and 2) show signs of butchering. Those bones which showed intentional cutting with a saw, cleaver, or large knife to make a certain shape or cut were classified as "butchered."

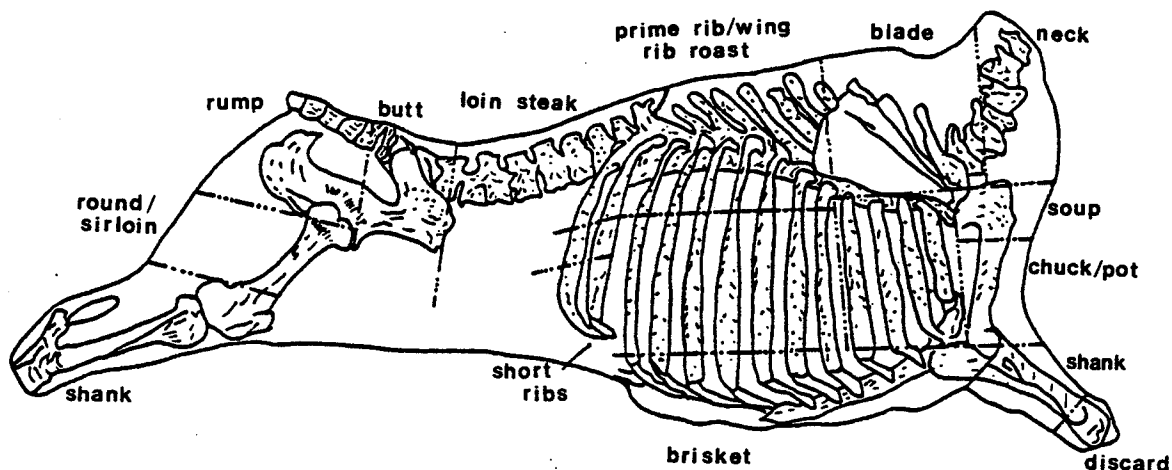
These bones were assigned to a particular "cut" on the basis of the Parks Canada Butchering Units (1982). This classification system represents a combination of standardized Anglo-Canadian-American carcass divisions. It identifies the bones or portions of bones that would be represented by each butchering unit. It does not deal with the tools or

the methods used to achieve these cuts. Therefore, it is easy to apply this system to comparative faunal samples because only three basic pieces of information are required for each bone, namely the element represented, the presence or absence of butchering marks, and a taxonomic identification.

The system is structured the same way for cow (beef), pig (pork), and sheep (lamb).¹ Carcass divisions are grouped into hind cuts, front cuts, and general cuts, and then subdivided into basic butchering units (shank, brisket, butt, etc.). The terminology is consistent throughout, thereby facilitating comparisons. The classification of cow butchering units has been designed to accommodate the larger Artiodactyl species such as Bison, Alces or Rangifer. Thus this system can accommodate bones which are identifiable only to the taxonomic level of order and allows comparison of wild versus domestic animal utilization.

Figures 6, 7, and 8 illustrate and define the butchering cuts of beef, pork, and lamb. The major sectioning of the bones comes at the lines indicating major carcass divisions.

¹ "Lamb" is used in preference to "mutton" to be consistent with modern meat terminology.



1. Hind Cuts

- a) shank - all tarsals, tibia, fibula, distal articulating femur
- b) round/sirloin - femur shaft
- c) rump - proximal articulating femur, posterior pelvis
- d) butt - anterior pelvis ($\frac{1}{2}$ acetabulum forward)
- e) loin steak - lumbar vertebrae

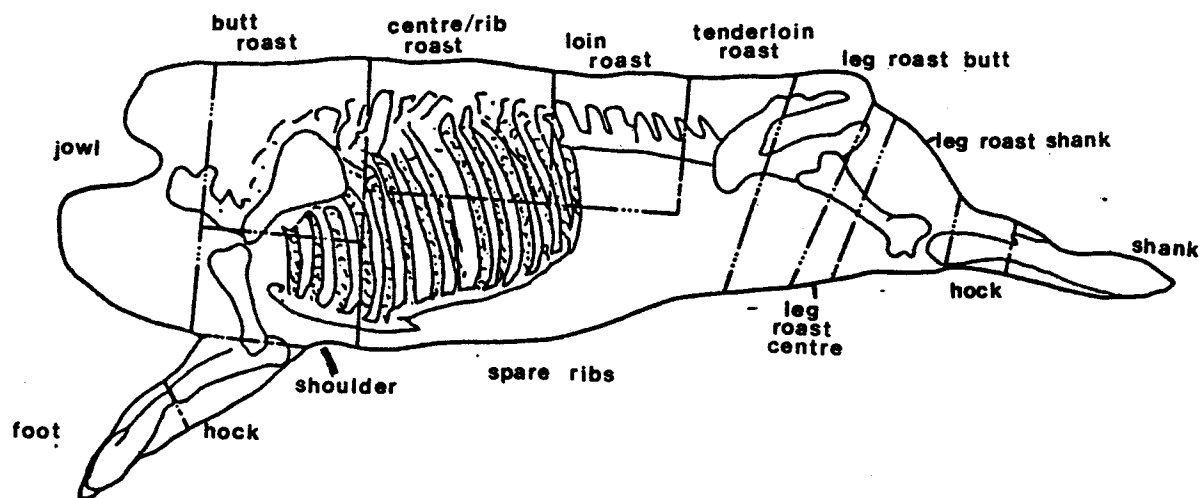
2. Front Cuts

- a) shank - all carpals, radius, ulna, distal articulating humerus
- b) chuck/pot roast - humerus shaft
- c) soup bones - proximal articulating humerus, glenoid fossa
- d) blade steak/roast - scapula (less glenoid fossa)
- e) neck - cervical vertebrae
- f) rib roast - thoracic vertebrae

3. General Cuts

- a) prime rib/wing - proximal section all ribs
- b) short ribs - medial section all ribs
- c) brisket - distal section all ribs, sternum

Figure 6: Beef: Major Butchering Cuts and Carcass Divisions (Parks Canada Artifact Analysis Manual for Historical Archaeology, 1982)



1. Hind Cuts

- a) shank - all tarsals, distal articulating tibia
- b) hock - tibia shaft, fibula
- c) leg roast, shank - proximal articulating tibia, distal half femur
- d) leg roast, centre - femur shaft
- e) leg roast, butt - proximal articulating femur, pelvis less ilium
- f) tenderloin roast - ilium, sacrum
- g) loin roast - lumbar vertebrae

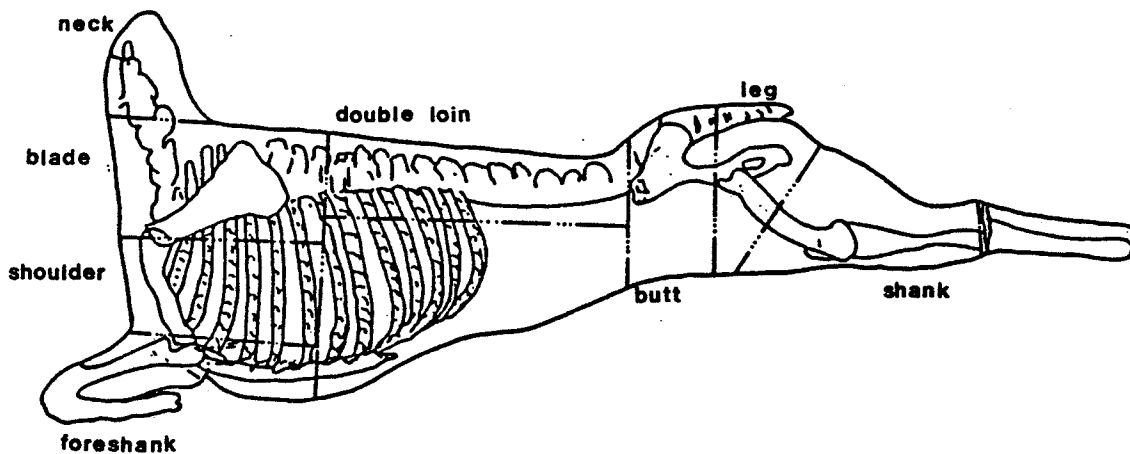
2. Front Cuts

- a) centre/rib roast - thoracic vertebrae (proximal rib section)
- b) butt roast - scapula
- c) jowl - cervical vertebrae
- d) shoulder - humerus less distal articulation (see General cuts)
- e) hock - radius, ulna, distal articulating humerus
- f) foot - all carpals, phalanges

3. General Cuts

- a) spare ribs - all of rib but proximal section (distal plus medial section)
- b) whole shoulder roast - whole rib

Figure 7: Pork: Major Butchering Cuts and Carcass Divisions (Parks Canada Artifact Analysis Manual for Historical Archaeology, 1982)



1. Hind Cuts

- a) shank - all tarsals, distal articulating tibia and fibula
- b) leg of lamb - rest of tibia and fibula, femur, posterior pelvis
- c) butt - anterior pelvis
- d) double loin chops - lumbar vertebrae

2. Front Cuts

- a) rib loin chops - thoracic vertebrae, proximal rib section
- b) blade - scapula (except possibly a portion of the glenoid fossa), part of proximal articulating humerus
- c) neck - cervical vertebrae
- d) shoulder - humerus (see General cuts)
- e) foreshank - all carpals, radius, ulna

3. Genral Cuts

- a) spare ribs - all of rib but proximal section (i.e. distal plus medial sections)
- b) whole shoulder roast - whole rib

Figure 8: Lamb: Major Butchering Cuts and Carcass Divisions (Parks Canada Artifact Analysis Manual for Historical Archaeology, 1982)

4.4.1 Privy 1

There were fourteen butchered cow bones representing eleven different cuts recovered from Privy 1. The majority of the bones were sawn, but two had been cleaved or cut with a large knife. Hind cuts and front cuts are equally represented in the sample.

Only two bison bones bear butchering marks. These are a femoral head and thoracic vertebrae representing a rump roast and rib roast respectively. Both bones were sawn.

Seventy-two bones belonging to the Bovidae family were butchered. Hind cuts dominated the sample, the most frequent being loin steak, followed by rump roast, shank, butt, and round/sirloin. There were twenty-seven bones which were assignable to front cuts. Sawing seems to have been the preferred butchering method as only ten of the bones were cut or cleaved.

The butchered large mammal bones are primarily assignable to four cuts: short ribs, rib roast, prime rib wing, and brisket. These include sixty rib fragments which, due to the nature of the butchering methods, are unidentifiable to a smaller taxonomical class. In general, the ribs have been initially cut into two pieces, a third and two-thirds of the way down the rib shaft to create a groove. The bones were then snapped along the grooves. Also included in the large mammal butchering class are a number of long bone and vertebral fragments which have been sawn and/or cut, but the exact element is unidentifiable. In other words, this class was used as a catch-all in terms of taxon and element.

However, knowing the subsistence patterns of the Red River Settlement, it is probable that these bones belong to the Bovid or cow family.

There were sixteen sheep bones recovered from Privy 1 which bore butchering marks. Hind cuts and front cuts were equally represented. Bones assignable to these cuts had been sawn, although the "general cut" bones (spare ribs and whole shoulder roast) had been cut and snapped.

The fifteen butchered pig bones showed the same trends as were seen with the species previously discussed. Hind and front cuts were equally represented and all but one had been sawn.

4.4.2 Privy 2

Very few butchered bones were recovered from Privy 2. In total, there were thirty-seven mammalian bones bearing saw and/or knife or cleaver marks. Most of these were classified as large mammal bones and represent a variety of cuts: neck, rib roast, brisket, blade, and short ribs. Bison, cow, pig, and sheep were minimally represented by one or two butchered bones each.

With so few bones representing several cut types, it is hard to identify butchering trends or food preferences. However, in comparison with the Privy 1 sample, no differences were noted in the actual butchering techniques or the resulting cuts of meat.

Chapter V

INTERSITE COMPARISON AND STATISTICAL ANALYSIS

5.1 INTRODUCTION

Privy 1 and Privy 2 collections were compared with each other and with two other sites from the Red River Valley. Finding comparative faunal collections from sites within the Red River and Assiniboine Valley proved to be a difficult task. Only nine sites, in addition to Upper Fort Garry, have been excavated in this geographical area. These sites were Brandon House, Fort Gibraltar, Garden Site, Lower Fort Garry, Fort Garry Gate, Hospital/Jail (Fort Garry Place), Lane's Post, St. Peter's, and Delorme House. Faunal remains from three of the sites, namely Fort Garry Gate, Fort Garry Place and Lane's Post, have not been identified.

Brandon House and Fort Gibraltar predate Upper Fort Garry. In addition, very few, if any, domesticates were identified from the recovered elements, possibly because they predate historic agriculture in the Red River Valley. The Lower Fort Garry collection, although extensive, dates to the time period of the Country Club House, thereby postdating the fort. The Garden Site also presented a more than ample collection, but raw identifications were not available and major problems with discrepancies and interpretations exist in the site report. Thus, only the faunal collections from St. Peter's and Delorme House were available for comparative purposes.

Although these two sites were used, it should be noted that problems exist with their samples as well. St. Peter's Church Dynevor was excavated by the Historic Resources Branch, CHR as part of their pre-impact assessment program. A very small area was excavated, and only a small number of faunal materials was recovered. Screens were not employed, so fish and small bird and mammal bones were probably missed. The Delorme House site yielded a large number of bones, but it was extremely hard to correlate them with the Delorme occupation. Only two areas yielded artifacts which fell within the time range of the Delorme occupation and have therefore been interpreted as Delorme family refuse deposits.

5.2 ST. PETER'S CHURCH DYNEVOR

Excavations were conducted on the grounds of St. Peter's Church Dynevor in the summer of 1983 by the Historic Resources Branch, Culture, Heritage, and Recreation. The site (EbLf-28) is located on the east bank of the Red River north of Selkirk and is the oldest native mission site in western Canada. Reverend William Cockran, the first Protestant missionary at the Red River settlement "labored hard and zealously to collect a few Indians together in order to induce them to throw off their savage habits, and lead a settled life, with a view to their moral and religious improvement" (Ross, 1856: 279). By the spring of 1832, he had convinced three Native families to settle at the extreme lower end of the colony. Additional families joined this small community, known as the Indian Community. Cockran writes,

We have now got 9 small houses built at the Indian Settlement. The houses are about 24 ft in length and from 15 to 16 ft in

breadth. They are sufficiently large to admit of a cellar in the centre of the room to deposit the potatoes which may be raised by the proprietor of the house (CMS Records, PAM MG7/82).

A wooden church was started in 1836 and was completed the following year. This structure was replaced in 1853 by a stone building. A school house was constructed in 1834, and a windmill was constructed in 1835 (McLeod and Hart, 1986: 1).

The excavations at the site were initiated

in response to development at St. Peter's Church Dynevor by the Manitoba ARC Authority Inc. in 1983. The ARC Authority constructed a small parking lot and washroom facility north of the church in close proximity to a series of [9] depressions (McLeod and Hart, 1986: 1).

Two one meter square units were dug in one of the depressions. The upper levels were shovelled; lower levels were trowelled. Unit 1 was excavated in the centre of the feature, to a depth of 105 cm. A total of 629 artifacts were recovered; no foundation remains were noted. Unit 2 was excavated at the northern edge of the feature. It was dug to a depth of 85 cm, with 185 artifacts recovered. A rock concentration, indicative of a stone foundation, was encountered at the northwest corner of this unit. Few dateable artifacts were recovered, although the presence of an earthenware sherd with the "Camilla" pattern (post-1833), an 1845 British threepence coin, and a liquor bottle (1860-1890) suggest the deposit dates from 1833 to 1890.

Hand-wrought nails and various construction hardware comprised approximately 23% of the total sample. Based on the relatively early dates recorded and the number of nails and construction hardware, it is believed that this feature "excavated at St. Peter's Church probably

represents a cellar depression that lay beneath one of the buildings constructed at the Indian Settlement" (McLeod and Hart, 1986: 5).

In total, 374 faunal elements were recovered (Tables 11 and 12). Mammals comprised 38.77% of the sample. Both wild and domesticated species were represented to varying degrees.

TABLE 11

List of Identified Fauna, St. Peter's Church, Dynevor

Cow	Bald Eagle	Northern Pike
Bison	Goose	Goldeye or Mooneye
Elk	Pelican	Sucker
Pig	Swan	Walleye
Marten	Canada Goose	Catfish
Muskrat	Mallard Duck	Bullhead
Rabbit		Channel Catfish
Ground Squirrel		Drumfish

Source: McLeod and Hart (1986: 10).

Cow and pig were the only two domesticates identified and made up only 3.5% of the total sample. A wide variety of wild game was identified, species included bison, elk, marten, muskrat, rabbit, and squirrel. Fish made up 38.50% of the sample; eight species were represented. Six avian species were identified and comprised 13.64% of the sample. No domesticated species were noted.

Thus, despite the period of agricultural success from the late 1830s to mid 1850s, the Natives continued to rely on wild game to supplement their diet. This could either have been in the form of subsistence

TABLE 12

Faunal Elements Identified to Species, St. Peter's Church

Species	Elements Recovered	% of Total Excavated Mammalian Elements	% of Total Sample
Cow	8	5.5	
Cow/Bison	4	2.8	
Bison	7	4.8	
Pig	5	3.5	
Elk	6	4.1	
Marten	11	7.6	
Muskrat	1	.7	
Rabbit	6	4.1	
Squirrel	12	8.3	
Large Mammal	30	20.7	
Medium Mammal	38	26.2	
Small Mammal	17	11.7	
Total Mammal	145	100.0%	38.77%
Pelican	1	2.0	
Eagle	1	2.0	
Goose	3	5.9	
Duck	2	3.9	
Swan/Duck/Goose	8	15.7	
Bird	6	11.8	
Large Bird	3	5.9	
Medium Bird	24	47.1	
Small Bird	3	5.9	
Total Bird	51	100.2%	13.64%
Fish	144		38.50%
Mollusc	1		.27%
Unidentified	33		8.82%
TOTAL	374	100.0%	100.00%

during crop failures or as a way to obtain money and/or supplies through sales of furs (McLeod and Hart, 1986: 9).

Butchering marks were found on 36 elements. These bones represented five possible beef cuts: chuck or pot roast, round or sirloin steak, and short ribs. The bones were not consistently butchered and a variety of tools (saws, knives, axes, and cleavers) were used.

5.3 DELORME HOUSE

The Delorme House is located on the west bank of the Red River, south of Winnipeg, near the town of St. Adolphe. It was built by Pierre Delorme between 1851 and 1865. Delorme was a rather well-to-do gentleman and well-respected within the community. On December 30, 1870, Delorme was one of six Metis elected to the provincial legislative assembly (McLeod, 1982: 6). The following year he ran in the federal riding of Provencher and was elected to the House of Commons. Delorme was also one of the principal personalities of the Red River resistance and a member of Louis Riel's provisional government (McLeod, 1982: 6).

The Delorme site was excavated during the summers of 1980 and 1981. The 1980 excavations were directed by Deborah J. Campbell and were conducted in and directly around the house (McLeod, 1982: 1). Dave McLeod directed the 1981 excavations in the areas north and east of the house. The site was extensively tested archaeologically, but only two areas were securely dateable to the Delorme occupation. Area A, the north kitchen wing, dated to the 1850s. Area B, the dairy/granary, dated from 1861 to the 1880s.

Area A was excavated in 1 meter-square units dug by trowel in 5 cm levels, 2 levels at a time. Area B was initially excavated by two shovel test trenches, one along the east-west axis and one along the north-south axis of the site. A series of 1 meter-square excavation units was later placed east of the building foundation where a concentration of artifacts had been produced in Transit A (McLeod, 1982: 19).

A total of 3505 bones were recovered from the two areas at the Delorme site. Of the 533 bones recovered from Area A, only 126 or 23.6% could be identified (McLeod, 1982: 30) (Table 13).

A variety of species is represented by the Area A bone assemblage, with the remains of both wild and domestic species present. The wild species include bison, moose, rabbit, and fish. Domesticates include pig, cow, and cat. The duck and goose elements were likely domesticated as well (McLeod, 1982: 62).

There were no repeated bone elements, thus the MNI for all species was one.

Area B had a much higher frequency of bone fragments. Of the 2972 bones recovered, only 12.3% could be identified (Table 13). Both wild and domestic species were represented. Pig elements made up 16.6% of the identified species, large mammals represented 64.7% of the unidentifiable total (McLeod, 1982: 168).

Comparisons were made between sites of which the occupants and their social position within the Red River community were known. Upper Fort Garry, Delorme House, and the native village at St. Peter's Church represent upper, middle, and lower class people as defined by the Red River society.

TABLE 13

Faunal Elements Identified to Species, Delorme House

Species	Elements Recovered Area A	Elements Recovered Area B	Total	% of Total Excavated Elements	% of Total Sample
Cow	8	45	53	1.7	
Cow/Bison	11	30	41	1.3	
Bison	2	2	4	.1	
Sheep		9	9	.3	
Pig	30	61	91	2.9	
Moose	1		1	.1	
Cervidae	1		1	.1	
Rodentia	13	6	19	.6	
Rabbit	3	10	13	.4	
Cat	1	17	18	.6	
Large Mammal	38	866	904	28.8	
Medium Mammal	73	69	142	4.5	
Small Mammal	40	11	51	1.6	
Mammal	110	1686	1796	57.1	
TOTAL			3143	100.0%	89.67%
Goose	1	5	6	2.4	
Duck	13	21	34	13.8	
Chicken	12	1	13	5.3	
Large Bird	20	20	40	16.2	
Medium Bird	53	28	81	32.8	
Small Bird	44	13	57	23.1	
Bird		16	16	6.5	
TOTAL			247	100.1%	7.04%
Freshwater Drum	1	5	6	7.4	
Walleye		1	1	1.2	
Fish	39	35	74	91.4	
TOTAL			81	100.0%	2.31%
Mollusc	17	15	32		.91%
Amphibian	2		2		.06%
TOTAL	533	2972	3505		99.99%

5.4 STATISTICAL ANALYSIS

As discussed in Chapter 1, faunal material, if representative of the foods eaten, should reflect the social and economic position of the consumers. In the archaeological evidence, this may be expressed through observable differences in the cuts of meat and the species represented. The four collections were compared using a chi-square test to see if there were statistically significant differences in terms of species utilization and body part/butchering cuts preferred. Because of the varying size of the four collections, it was only possible to compare them statistically at a gross level.

5.4.1 Chi-Square Tests

Three chi-square tests were conducted. For each test, a probability of 95% ($\alpha = .05$) was accepted because of the smallness of the sample size that was dealt with.

The first chi-square test was performed to see if there was a difference in reliance upon the three major taxonomic classes: mammal, bird, and bony fish. The null hypothesis stated that mammal, bird, and fish species were equally utilized at the two Upper Fort Garry sites, the Delorme site, and the St. Peter's site.

The chi-square test result for class use was chi-square 2580.30 within six degrees of freedom. This result is unacceptably large given a significance level of 0.05, and so the null hypothesis was rejected.

TABLE 14

Observed and Expected Values (NISP) for Mammal, Bird, and Fish

	Mammal		Bird		Fish		Total
	ob	ex	ob	ex	ob	ex	
UFG Privy 1	975	(1332.55)	324	(199.39)	748	(515.80)	2048
UFG Privy 2	317	(768.43)	64	(115.10)	800	(297.47)	1181
Delorme	3143	(2258.44)	247	(338.27)	81	(874.28)	3471
St. Peter's	145	(221.22)	51	(33.14)	144	(85.64)	340
Total	4580		686		1773		7039

The values in the table for the first chi-square test reveal differences in the consumption of mammal, bird, and fish among the four sites. The Delorme collection represents a heavy dependence upon mammalian species for food. Fish elements comprise only 2.3% of the entire sample. By contrast, at Upper Fort Garry Privy 2 (UFG2), fish remains dominate. At St. Peter's and Upper Fort Garry Privy 1 (UFG1), fish elements almost equal the number of mammalian elements. Although this does not mean that both mammals and fish contributed equally to the diet, it does reflect relative usage. Thus, at the Delorme site, it would appear that fish played a minor role in the consumers' diets. The preponderance of fish bone in the UFG2 collection may reflect a higher reliance on fish for food. However, the kind of fish elements recovered in this sample would have to be considered before making any definite statements because fish have so many more bones per individual than most individuals from the other zoological classes.

The table also illustrates that bird species did not contribute as much to the diet at Delorme and UFG2 as they did at both UFG1 and St. Peter's.

A chi-square test was also applied to the data to see whether wild or domestic species were preferred by the consumers. The comparison was done at the family level with Bovidae (cow, sheep), Suidae and Equidae classified as domestic and the following species classified as wild: Leporidae, Sciuridae, Crictidae, Mustilidae, Corvidae, Antilocapridae, and Bovidae (bison). The null hypothesis stated that wild and domestic species were utilized equally at the two Upper Fort Garry sites and the Delorme and St. Peter's sites.

The result of the chi-square test was chi-square 110.75 with three degrees of freedom. This result is unacceptably large given a significance level of 0.05, and the null hypothesis was rejected.

This chi-square test was conducted using the minimum number of individuals per species (MNI). In the UFG1 and UFG2 collections, there appears to be an almost equal number of wild and domestic animals represented in each. This does not mean, however, that wild and domestic species were equally important to the consumer's diet at Upper Fort Garry. The domestic species (cow, sheep, pig) would have provided, on the whole, more meat per individual than the game species represented (rabbit, squirrel, muskrat). At Delorme House, however, the dietary emphasis appears to have been on domestic species. Very few elements from game animals are represented in this collection. On the other hand, wild species dominate the St. Peter's collection.

TABLE 15

Observed and Expected Values (MNI) for Wild and Domestic Species

	Wild		Domestic		Total
	ob	ex	ob	ex	
UFG Privy 1	73	(55.34)	69	(86.66)	142
UFG Privy 2	17	(11.30)	12	(17.70)	29
Delorme	19	(63.53)	144	(99.47)	163
St. Peter's	43	(21.83)	13	(34.17)	56
Total	152		238		390

Finally, a chi-square test was employed to see if there was a difference between Upper Fort Garry and the Delorme-St. Peter's collections in their selection of body parts of cow, pig, and sheep. The null hypothesis stated that the Upper Fort Garry and Delorme-St. Peter's collections would be equal in their selection of body parts of cow, pig, and sheep.

The result of the chi-square test was 28.61 with five degrees of freedom. This result is unacceptably large given a significance level of 0.05; hence, the null hypothesis was rejected.

TABLE 16

Observed and Expected Values (NISP) for Cow, Pig, and Sheep

	Podial and Metapodial		Radius, ulna, Tibia, fibula		Femur and Innominate		Humerus and Scapula		Vertebrae		Ribs		TOTAL
	ob	ex	ob	ex	ob	ex	ob	ex	ob	ex	ob	ex	
UFG Privy 1 UFG Privy 2	12	(30.36)	18	(21.05)	13	(12.24)	11	(9.30)	38	(29.38)	26	(15.67)	118
Delorme St. Peter's	50	(31.64)	25	(21.95)	12	(12.76)	8	(9.27)	22	(30.62)	6	(16.33)	123
Total	62		43		25		19		60		32		241

The samples from the four sites reflect significant differences in body part selection of domestic animals for consumption purposes. The Delorme and St. Peter's collections contain a greater number of lower leg bones than the UFG1 and UFG2 collections. These bones (lower leg) are associated with less meatier, poorer quality, and less expensive meat cuts. In comparison, UFG1 and UFG2 samples have a greater number of central body bones (vertebrae, ribs) than the St. Peter's and Delorme collections. These central body bones reflect meat cuts which are meatier, of a higher quality, and more expensive.

The null hypothesis was rejected in all three cases. It was concluded that the chi-square tests were indicative of dissimilarity in the samples in terms of species utilization and body part selection.

5.4.2 Analysis of Variance and T-Tests

In order to compare the preference for specific butchering units between the sites, an analysis of variance was attempted. The butchering units utilized were described in an earlier section. The minimum number of times each cut was represented in each sample was calculated; these were ranked from most expensive to cheapest in terms of their monetary value. This ranking was based on a combination of modern beef prices set by Canada Safeway Ltd. and historic prices from the mid-nineteenth century Sacramento area (Schulz and Gust, 1983: 50).

Table 17 compares both sets of data, showing that there was little difference in the ranking of beef from past to present. In fact, only three anomalies exist. Today sirloin is slightly more expensive than rib roast or prime rib wing, and blade is more expensive than rump. A shank cut is more expensive than a neck cut. The price differences are minimal and to be consistent with previous studies the historic ranking from Schulz and Gust will be accepted for this study.

After determining the rankings that would be utilized, an analysis of variance and a t-test were attempted, but the sample size of butchered bones at a minimum number level was too small for the results to be statistically significant. The tests were not attempted using the number of identifiable specimens (NISP) values because of the problems

TABLE 17

Comparison of Historic and Recent Prices of Beef Cuts

Cut	Historic Rank	Rank	Recent Cut
Loin Steak	1	1	Loin steak (\$14.97)
Butt/Rib Roast/ Prime Rib Wing	2	2	Butt (\$9.02)/Rib Roast (\$7.69)/ Prime Rib Wing (\$7.91)
Round/Sirloin	3	3	Round (\$7.47)/ Sirloin (\$8.14)
Rump	4	5	Rump (\$5.55)
Blade	5	4	Blade (\$6.15)
Short Rib/Cross Rib/ Chuck Pot/Soup	6	6	Short Rib (\$5.04)/ Cross Rib (\$6.57)/ Soup (\$4.37)
Neck	7	8	Neck (\$4.13)
Hind Shank/Foreshank	8	7	Hind shank/fore shank (\$4.37)

The price given for a Cross Rib roast is for a boneless one and is therefore artificially high.

Source: Schulz and Gust, 1983: 50; Canada Safeway Ltd.

inherent with this approach (Grayson, 1978: 53-65). The number of elements per cut varies greatly, so that any comparison based on the number of bones and not the cuts represented would be of little value.

Certain trends are visible at a purely descriptive level. Keeping the same ranking system for cow and Bovid sp., the minimum number of times each unit was represented for all four calculations was determined. This is illustrated in Figures 9, 10, and 11. It clearly shows that the Upper Fort Garry privy collections contain a higher

percentage of expensive cuts compared to the St. Peter and Delorme House sites, where greater percentages of cheaper cuts predominate.

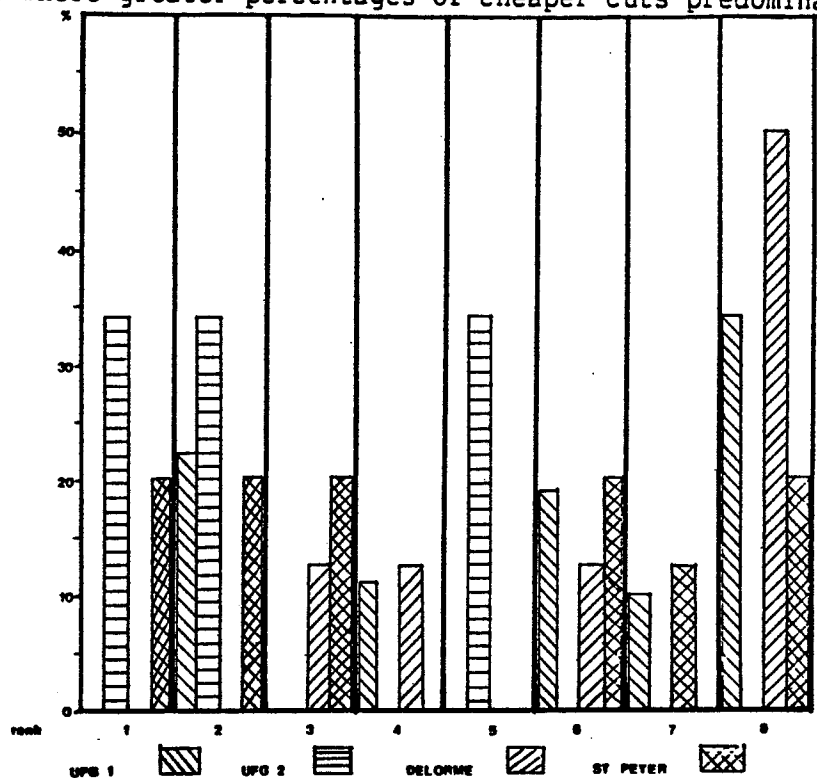


Figure 9: MN Frequency of Ranked Cuts: Cow

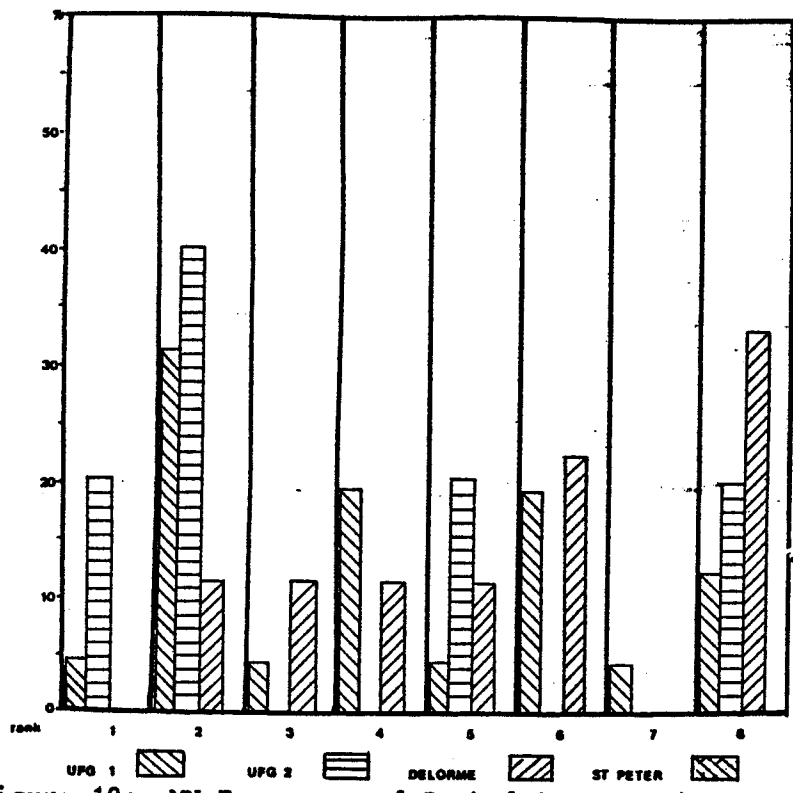


Figure 10: MN Frequency of Ranked Cuts: Bovid sp.

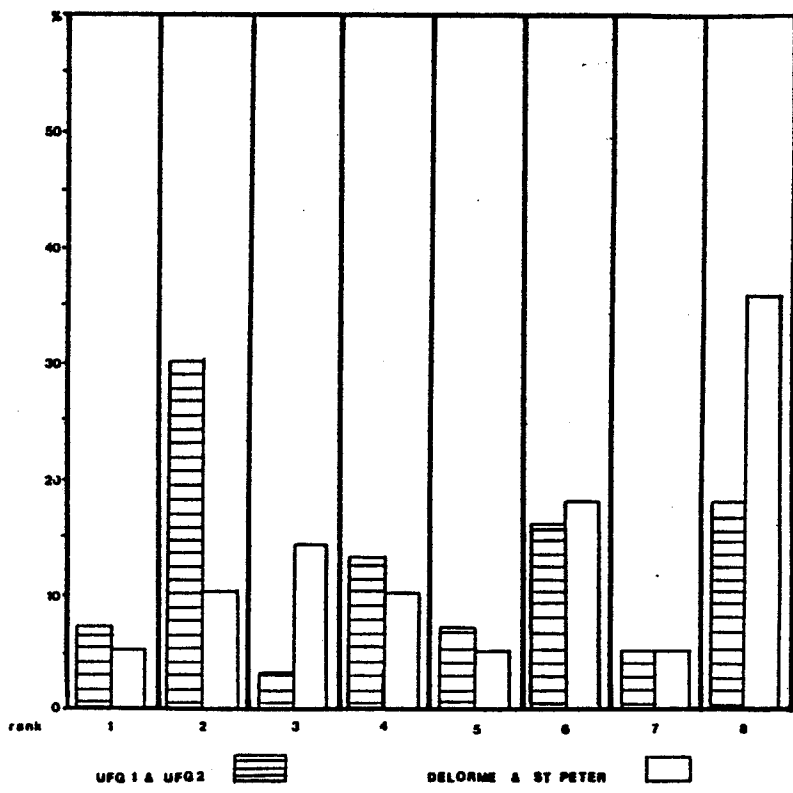


Figure 11: MN Frequency of Ranked Cuts: Cow and Bovid sp.

5.5 ARCHIVAL EVIDENCE

An intensive study was undertaken to determine the price of meat, pork, and mutton in the Red River Settlement. This was an attempt to achieve a better understanding of the economic setting during the mid-1800s. Prices were obtained from a variety of sources, including the HBC Transfer and Account Books for both Upper and Lower Fort Garry and York Factory, and the Nor'wester and Hargrave's Journals. These archival and documentary sources did provide information regarding the monetary cost of the meat available for consumption. However, as can be seen from Table 18, there is little to no price differentiation during the years in which the Sixth Regiment occupied Fort Garry. It is only by the late 1800s that "luxury" items are represented through monetary value in the price indices.

This is not to say that all foods were equally available or that the same quality of meat was equally available to all. The HBC store appears to have been the principal regulator. For example, Warburton, a soldier with the Royal Canadian Rifles posted at Upper Fort Garry in the 1850s described the Fort as "a lonesome and bleak place, no such thing as I'll go and buy this or I'll go and buy that, you can get nothing to buy, beg, or borrow, the Company store is pound (for?), we can get no butter, they supply us with groceries".

Although Warburton was at the fort a decade after the time period in question, one can assume that a similar situation existed in the 1840s. The shopkeeper was ultimately responsible for deciding which local inhabitants were worthy of credit, for ensuring the Company made a

TABLE 18
Price Lists, 1846-1871

	1846	1847	1848	1859	1866	1871
Domestic Beef (per lb)		2d	2.5d	2.5d	2d	
Veal	2.5d		2.5d			
Buffalo Meat (per lb)				2d	2d	
Pork (per lb)			2.5d	4d	8.5d	
Ham	13/4	13/4	13/4			
Mutton (per lb)			2.5d		8d	
Salt Pork	4d	4d				
Pemmican (per lb)			2d	4d	4d	1s
Dried Meat (per lb)	2.5d	2d	2.5d	3d	2d	8d
Corned Beef			4d			
Moose Meat					8d	
Moose Nose					2/6	
Chicken					1s	
Beaver Tail					2/6	
Buffalo Tongues	10d	9d	10d	1/3	1s	
Bosses			9d		2/6	

s = shilling
d = pence
/ = shillings/pence

12 pence = 1 shilling
20 shillings = 1 pound

profit on the goods sold (Loewen and Monks, 1986: 18). Knowing the power of the HBC and the influence it had in the RRS, it is probable that the shopkeeper imposed the Company's hierarchical ranking and thus may have offered excellent quality goods to the upper class and average or substandard quality goods to the lower classes.

Decisions of a social nature were also made in the fort and executed throughout the store. J.F. Crofton noted in his journal on 23 December 1846:

The settlers are on this day, and will tomorrow also be, allowed to purchase rum at the Company's store, for their Christmas festivities (Loewen and Monks, 1986: 20).

There also appears to have been differential access to goods within the HBC, including food, according to the hierarchical ranks of the Company. In addition to wages, the Company offered board and lodging as an economic inducement to potential recruits (Goldring, 1979: 145). "The journals and account books imply distinctions between the ranks in terms of differential consumption of goods" (Hamilton, 1985: 384).

Several menu and requisition forms exist from the mid-1800s, indicating the food given to HBC officers and HBC clerks. There is a notable difference in diet between the two. Table 19 gives the supplies for Gentlemen and Male Servants at Lower Fort Garry for the year 1861-1862. Gentlemen received a more varied diet, one made up entirely of fresh meat. The male servants received a plainer diet, of which 63% was dried or processed meat and only 37% being fresh meat.

TABLE 19

HBC Records for Lower Fort Garry, 1861-1862

Male Servants	- 4330 lb. pemmican; 4976 lb. fresh beef; 2275 lb. salt beef; 1038 lb. dried meat; 1237 lb. salt pork; 181 lb. sturgeon; 16 lb. ham
Gentlemen	- 2735 lb. fresh beef; 84 ducks; 48 doz. eggs; 507 whole fish; 31 fowl (chickens); 9 geese; 233 lb. ham; 437 lb. mutton; 8 sturgeon

Source: Livermore (1976: 129).

This is reinforced by the Officer's Menu from York Factory for December 1838 (Table 20). Officers there received fish, partridge, pork, roast beef, rabbit, salt beef, venison, salt geese, ducks, geese, ham, and tongue.

In 1846, the HBC was given the contract of supplying food for the Sixth Regiment. Because the Regiment was associated with the upper echelons of the HBC it would be expected that they were served the equivalent of an officer's diet. This appears to be corroborated by the archival data. The Company originally offered salted beef to fulfill its obligations, but the soldiers refused it and demanded fresh meat. "As the host of a force which had been instrumental in bringing to the Colony, the Company could do little but accede to the requests" (Ingram, 1970: 50).

The archaeological data parallels the archival data. The Upper Fort Garry Privy 1 collection contains all of the food items which comprised an officer's diet: fish, partridge, pork, fresh beef, rabbit, venison, geese, ducks, and mutton. This perhaps is inconclusive in that almost all of the species are found in the three other collections. Absent from both Privy 2 and St. Peter's is lamb and sturgeon. St. Peter's also lacks partridges, as does the Delorme collection. However, as indicated by the statistics, there is a definite difference in dependence upon various species and selection of body parts for consumption. The faunal collection from St. Peter's shows a reliance on wild animals for subsistence. From the Delorme House assemblage it is obvious that domestic animals were of primary importance to the diet.

TABLE 20

HBC Bill of Fare (Officers), York Factory, 1838

Date	Breakfast	Dinner
1	Fried fish	Soup, stewed partridge, pork chops, potatoes, cheese
2	Beef steak	Soup, roast beef, potatoes, pudding, cheese
3	Fried fish	Soup, stewed rabbit, boiled partridge, potatoes
4	Fried fish	Soup, venison pie, boiled partridge, potatoes, tart
5	Fried fish	Soup, roast beef, potatoes, cheese
6	Fried fish	Soup, roast pork, curried partridge, potatoes
7	Fried fish	Soup, salt beef, potatoes, pudding, cheese
8	Fried fish	Soup, roast venison, beef steak, potatoes, cheese
9	Beef steak	Soup, roast beef, pudding, cheese
10	Fried fish	Soup, stewed rabbit, partridges, potatoes
11	Fried fish	Soup, venison pie, venison steaks, potatoes, tart
12	Fried fish	Soup, roast beef, potatoes, cheese
13	Fried fish	Soup, roast pork, partridge, potatoes
14	Fried fish	Soup, salt geese, ducks, potatoes, pudding
15	Fried fish	Soup, roast venison, curried partridge, potatoes
16	Beef steak	Soup, roast beef, potatoes, pudding, cheese
17	Fried fish	Soup, roast partridge, stewed rabbit, potatoes
18	Fried fish	Soup, venison pie and steaks, potatoes, tart
19	Fried fish	Soup, roast beef, potatoes, cheese
20	Fried fish	Soup, roast pork, potatoes, cheese
21	Fried fish	Soup, salt geese, curried fish, potatoes, pudding
22	Fried fish	Soup, roast partridge, stewed rabbit, potatoes
23	Beef steak	Soup, roast beef, potatoes, pudding, cheese
24	Fried fish	Soup, roast venison, potatoes, cheese
25	Fried fish & beef steak	Soup, roast beef, geese, potatoes, mince pies, pudding
26	Fried fish	Soup, roast beef, potatoes, cheese
27	Fried fish	Soup, roast beef, potatoes, boiled ham and tongue, mince pies
28	Fried fish	Soup, boiled pork, potatoes, peas, suet pudding
29	Fried fish	Soup, roast venison, potatoes, cheese
30	Fried fish	Soup, roast beef, potatoes, pudding, cheese
31	Fried fish	Soup, curried rabbit, roast partridge, potatoes

Source: Beaver (1923: 453).

In both Privy 1 and Privy 2 collections the actual number of elements from wild and domestic animals are basically equal, but the domestic animals - cows, pigs, and sheep - would have supplied more meat to the diet. Fish, waterfowl, rabbit, and venison would have been used primarily to add variety to the diet.

As was seen in the statistical analysis, different parts of the body were selected as food items at the four different sites. At Upper Fort Garry, primarily expensive cuts were selected: loin steaks, butt, rib roasts, and prime rib wing. These equate to meatier parts of the body, namely the upper leg, pelvis area, and the vertebral column. Only 37 butchered mammal bones were recovered from Privy 2 as compared to the 121 butchered mammal bones from Privy 1. The difference in amounts is primarily a function of variation in sample size. In comparing the Privy 1 and Privy 2 collections, no differences were noted in the actual butchering techniques or the resulting cuts of meat. Both collections have a higher percentage of high ranked meat cuts than low ranked meat cuts. The butchered Bovid bones from St. Peter's and Delorme House are largely cheaper cuts: short ribs, chuck/pot roasts, soup bones and shank cuts. Similarly, these represent less meatier and hence poorer quality parts of the body.

Chapter VI
CONCLUSIONS

The analysis of the faunal remains from Upper Fort Garry was undertaken with three objectives:

1. To reconstruct the pattern of animal utilization during the occupation of Fort Garry with respect to the relative importance of species and butchering practices employed;
2. To compare the reconstruction with historical and archaeological records of animal use in the Red River Settlement and surrounding areas during the mid-1800s; and
3. To examine the relationship between diet and economic pattern by identifying patterns within the reconstruction and subsequent comparisons which may reflect the economic status of the consumers.

The methods employed to achieve these objectives are outlined in Chapter 3. The methods include the identification and analysis of approximately five thousand bones, and a thorough investigation of archival and documentary sources relating to the mid-1800s.

During the course of excavations at Upper Fort Garry (DILg-21), two privy/refuse pits were uncovered. Only the faunal material recovered from these two structures was analyzed for a number of reasons. Very few bones were recovered from units outside the privy structures and

those that were were found within the fill. In addition, the two structures provided a large enough sample for statistical purposes (i.e. to be representative).

A variety of artifactual material, including glass, ceramics, textiles, and newspapers was used to date the structures (Fifik, 1986: 70-92). Based on this archaeological evidence, it is believed that Privy 1 was in use during the Sixth Regiment of Foot's occupation of Upper Fort Garry, 1846-1848. Indications of the presence and use of the structure by the army include metal military items bearing the insignia of the Sixth Regiment and two fragments of cloth with the names of two of the Regiment's soldiers stamped on them. Privy 2 lacks any military related artifacts and appears to postdate Privy 1 (post-1848).

Chapter 2 describes the development and slow expansion of agricultural pursuits in the Red River Valley. The early settlers had to contend with numerous setbacks such as locusts, frosts, floods, inadequate equipment, and poor storage facilities. Not only were they hundreds of miles away from a viable market in which to sell their goods, but the HBC, whose main interests lay in the fur trade, controlled the small market which was locally available. Even under these adverse conditions, however, the settlers managed to produce food for themselves and to supply the fur trade. Country produce included pemmican, dried meat, cured buffalo tongue, small buffalo bosses, fresh beef, salted pork, fresh pork, cured pork hams, mutton, lard, onions, cabbage, potatoes, butter, cheese, flour, eggs, and wheat.

While relying primarily on agricultural produce for subsistence, the surrounding environment was not ignored. Rabbits, geese, ducks, grouse, fish, and large game animals provided temporary sources of supplies during periods of hardship and added variety to the everyday diet.

Chapter 2 thus outlined the food resource base available to the residents in the Red River valley and the subsistence strategies they employed. It was suggested that there was a differential reliance on domestic and wild products depending upon economic and/or social position and on the time period in Red River history. English and Scottish settlers were primarily agriculturalists, but the native populations relied most heavily upon wild resources, although they did have access to and occasionally produced their own domestic products. The Metis during the early days of the Red River Settlement had been heavily involved in the bison hunts but as herds decreased they turned more and more to agricultural pursuits.

Social status was defined primarily on the basis of economic class. Within the Red River Settlement during the first half of the nineteenth century, a person's occupation was closely aligned with their social position and ethnic affiliation. The social structure of the society was that of a pyramidal hierarchy. In this sense the structure of the Hudson's Bay Company was of a type similar to the social structure of the Red River Settlement. Defining characteristics included ethnic identity, religion, and occupation. At the top of this structure was the Governor of Assiniboia, head of the Red River Settlement and the Hudson's Bay Company (Northern Territories). The next level of the

hierarchy was composed of Hudson's Bay Company officers, civic administrators, and functionaries. These people were primarily Scottish or English. Agriculturalists and skilled tradesmen made up the third tier of the hierarchy. Traditionally these roles were filled by Orkney men, Highlanders, and Englishmen, although by the mid-1800s English-speaking Metis were breaking into these ranks. At the bottom of the hierarchy were the servants, labourers, and seasonal employees. These roles were filled for the most part by natives and English and French-speaking Metis. The Sixth Regiment of Foot was directly associated with the upper echelons of the Hudson's Bay Company and therefore with the Red River Settlement.

As discussed in Chapter 1, food remains provide an excellent data base from which to study economic structuring. Diets are universally characteristic in that they are culture-specific and sometimes even specific to different members in a culture group. It was suggested that if food items are viewed as economic goods, they should reflect the socioeconomic status of their consumers. Thus people belonging to a higher socioeconomic level may be able to enjoy a diet which is more expensive to maintain given the local environment (Reitz and Cumbaa, 1983: 159). In the archaeological evidence, this may be expressed through observable differences in the cuts of meat represented, the species represented in the sample, and the age of the butchered animal.

The faunal material from the privies at Upper Fort Garry were identified to the smallest possible zoological taxon. Special note was made of any natural or cultural modifications (e.g. rodent/carnivore

gnawing, cut marks, heat exposure). Butchered bones were analyzed more closely and were assigned to a particular cut on the basis of the Parks Canada manual.

Research into the relative cost of cuts of meat and meat by-products was completed and the results are outlined in Chapter 4. Although little or no price differentiation was noted during the years in which the Sixth Regiment occupied the fort, the archival evidence clearly suggests differential access to the goods based on social position.

The faunal analysis of the two privies demonstrated a reliance by the consumers on domestic animals for subsistence. Ten percent of the total sample (Privies 1 and 2) were butchered. Butchering cuts were studied and their relative economic cost was assessed. The cuts were ranked from most to least expensive in terms of their monetary value, which was based primarily on the quantity and quality of the meat supplied by each cut. The Upper Fort Garry collections demonstrated a preference for expensive cuts: loin steaks, butt, rib roasts and prime rib wing.

In terms of species utilization, there does not appear to be a difference between UFG1 and UFG2. Mammalian elements dominate the UFG1 collection, whereas fish elements are most numerous in the UFG2 collection. The heavier preponderance of fish bone in Privy 2 may reflect a greater reliance on fish for food. Bird elements make up 15.8% of the Privy 1 sample, whereas they comprise only 5.5% of the UFG2 sample. This also suggests differences in selection and consumption of food items.

The comparison of the faunal assemblage for Delorme House and St. Peter's Church Dynevor suggest differences in terms of species utilization and meat cuts selected. The St. Peter's collection demonstrated a reliance on wild animals by the natives for subsistence. From the Delorme House assemblages it is obvious that domestic animals were of primary importance in the family's diet. The butchered Bovid bones from both St. Peter's and Delorme House are largely cheaper cuts: short ribs, chuck/pot roasts, soup bones, and shank cuts. This selection was interpreted as representing economic necessity as opposed to taste preferences.

Statistical analysis of the data was successful at a gross level. However, the smallness of the sample size of butchered bone from all four collections precluded any statistically significant testing. Thus, analysis of economic variability was conducted at a purely descriptive level. Minimum numbers of beef cuts were used as the unit of analysis because of the problems inherent in NISP values (deceptive frequencies and potential interdependence of counted bone specimens). The cost-efficiency of beef cuts was not utilized as the unit of analysis because too many uncontrollable variables were involved. Most importantly, "it is not possible to demonstrate empirically that cost-efficiency of beef purchases as reflected by meat yield is tightly correlated with purchasing power, income level, or economic class" (Lyman, 1987: 62).

This thesis examined the faunal material material from three sites in the Red River Valley: Upper Fort Garry, Delorme House, and St. Peter's

Church Dynevor. A thorough examination was conducted of the archival sources relating to the period in question (1812-1850). This extensive research provided an excellent understanding of the time period and society in question, thereby allowing a more accurate interpretation of the cultural context from which the faunal collection was derived. Although the historical data accumulated was regionally and temporally limited, a methodological framework for the economic analysis of faunal samples was successfully established. The results of this particular analysis indicate differing animal utilization in terms of species and body parts selected. The choice of food items reflect different social and economic contexts at each of the sites examined.

Thus, in conclusion, faunal material can be a vital tool in assessing the economic position of the consumers and aid greatly in the interpretation of Upper Fort Garry.

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Appendix A
CODING FORMAT

Column	Variable	Code
1-6	Site	DILg-21
7-10	North Unit	N 01-999
11-14	South Unit	S 01-999
15-16	Level	01-99
17-18	Stratum	01-99
19-22	Depth below stratum	1-9999
23-26	South provenience	1-9999
27-30	West provenience	1-9999
31-36	Catalogue number	1-99999
37-38	Class	Artifact analysis manual for historic archaeology, Parks Canada
39-48	Taxon	See Appendix
49-53	Anatomical Element	See Appendix
54-55	Portion of Element	See Appendix
56-57	Segment of Portion	See Appendix
58-60	Quantity	
61-66	Weight (grams)	000.00-999.99
67	Side	1=left; 2=right
68	Fusion	1=complete; 2=partial; 3=unfused; 4=one epiphysis fused, one missing

69	Eruption	0 or 1=complete eruption; 2=partial eruption; 3=unerupted
70-71	Burn	1=burn/charred; 2=calcined
72	Juvenile Cortex	1=present; 2=foetal
73	Break	1=present
74	Butchering	1=cut; 2=cut and sawn; 3=sawn; 4=split
75	Flake	1=a flake of bone; 2=a flaked object
76	Other	1=gnawed; 2=weathered, cortex flaking, or missing; 3=paint; 4=dental carie; 5=medullary bone; 6=drilled; 7=polished
77	Re-Examine	1=re-examine part; 2=re-examine taxon; 3=re-examine part and taxon
78-80	Bone Number	001-999

Appendix B
TAXONOMIC COMPUTER CODING SYSTEM

Class 01: Mammalian

<u>ORDER</u>	<u>FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Insectivora 01	Soricidae 01	Sorex 01	cinereus 01	Kerr	Masked Shrew
			vagrans 02	?	Wandering Shrew
			palustris 03	Richardson	American Watering Shrew
	arcticus 04		Kerr	Arctic Shrew	
*fumeus 05			Smoky Shrew		
		Microsorex 02	hoyi 01	(Baird)	Pigmy Shrew
		Elarina 03	brevicauda 01	(Say)	Short-tailed shrew
	Talpidae 02	Condylura 01	cristata 01	(Linnaeus)	Star-nosed Mole
Chiroptera 02	Vespertilionidae 01	Myotis 01	lucifugus 01	(Le Conte)	Little-Brown Bat
			keenii 02	(Merriam)	Keen's Bat
		Lasionycteris 02	noctivagans 01	(Le Conte)	Silver-haired Bat
		Eptesicus 03	fuscus 01	(Palisot de Beavois)	Big Brown Bat
		Lasiurus 04	borealis 01	(Müller)	Red Bat
			cinereus 02	(Palisot de Beavois)	Hoary Bat
Primates 03	Hominidae 01	Homo 01	sapiens 01	Linnaeus	Man
Lagomorpha 04	Leporidae 01	Sylvilagus 01	floridanus 01	(J. A. Allen)	Eastern Cottontail
			Lepus 02	americanus 01	Erxleben	Snowshoe Hare
			townsendii 02	Bachman	White-tailed Jack Rabbit
			domestic 03	?	Domestic Rabbit
Rodentia 05	Sciuridae 01	Tamias 01	striatus 01	(Linnaeus)	Eastern Chipmunk
			Eutamias 02	minimus 01	(Bachman)	Least Chipmunk

Class 01: Mammalian continued

ORDER

Rodentia
05

<u>FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Sciuridae 01	Marmota 03	monax 01	(Linnaeus)	Woodchuck
	Citellus 04	richardsonii 01	(Sabine)	Richardson's ground squirrel
		tridecemlineatus 02	(Mitchell)	13-lined ground squirrel
		franklinii 03	(Sabine)	Franklin's ground squirrel
	Sciurus 05	carolinensis 01	Gmelin	Grey/Black squirrel
niger 02			Eastern Fox squirrel	
Tamiasciurus 06	hudsonicus 01	(Erxleben)	American Red-squirrel	
Glaucomys 07	sabrinus 01	(Shaw)	N. Flying squirrel	
Geomyidae 02	Thomomys 01	talpoides 01	(Richardson)	Northern Pocket Gopher
	Geomys 02	bursarius 01		Plains Pocket Gopher
Heteromyidae 03	Perognathus 01	fasciatus 01		Olive-backed Pocket Mouse
Castoridae 04	Castor 01	canadensis 01	Kuhl	Beaver
Cricetidae 05	Peromyscus 01	maniculatus 01		Deer Mouse
		*leucopus 02		White-footed Mouse

Class 01: Mammalian Continued

ORDER

Rodentia
05

<u>FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>	
Cricetidae 05	Reithrodontomys 02	*megalotis 01		Western Harvest Mouse	
	Onychomys 03	leucogaster 01		Northern Grasshopper Mouse	
	Clethrionomys 04	gapperi 01		Boreal Redback Vole	
	Phenacomys 05	intermedius 01	Merriam	Heather Vole	
	Microtus 06		ochrogaster 01	(Wagner)	Prairie Vole Meadow Vole
			pennsylvanicus 02	(Ord)	
	Ondatra 07	zibethica 01	(Linnaeus)	Muskrat	
	Synaptomys 08		borealis 01	(Richardson)	Northern Bog Lemming Southern Bog Lemming
cooperi 02					
Muridae 06	Rattus 01	**norvegicus 01	(Berkenhout)	Norway Rat	
	Mus 02	**musculus 01	(Linnaeus)	House Mouse	
Zapodidae 07	Zapus 01	hudsonius 01	(Zimmerman)	Meadow Jumping Mouse Western Jumping Mouse	
		princeps 02			

Class 01: Mammalian Continued

<u>ORDER</u>	<u>FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Rodentia 05	Zapodidae 07	Napaeozapus 02	insignis 01		Woodland Jumping Mouse
	Erethizontidae 08	Erethizon 01	dorsatum 01	(Linnaeus)	Porcupine
Carnivora 06	Canidae 01	Canis 01	latrans 01 lupus 02	Say Linnaeus	Coyote Wolf
		Vulpes 02	vulpes 01 fulva 02 velox 03	(Linnaeus)	Red Fox Coloured Fox Kit Fox
		Urocyon 03	cinereoargenteus 01	(Schreber)	Grey Fox
	Ursidae 02	Ursus 01	americanus 01 **horribilis 02	Pallas	Black Bear Grizzly Bear
	Procyonidae 03	Procyon 01	lotor 01	(Linnaeus)	Raccoon
	Mustelidae 04	Martes 01	americana 01 pennanti 02	(Turton) (Erxleben)	American Marten Fisher
		Mustela 02	erminea 01 frenata 02 rixosa 03 vison 04	Linnaeus Lichtenstein Schreber	Ermine Longtailed Weasel Least Weasel Mink

Class 01: Mammalian Continued

<u>ORDER</u>	<u>FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Carnivora 06	Mustelidae 04	Gulo 03	luscus 01		Wolverine
		Taxidea 04	taxus 01	(Schreber)	American Badger
		Mephitis 05	mephitis 01	(Schreber)	Striped Skunk
		Lontra 06	canadensis 01	(Schreber)	River Otter
	Felidae 05	Felis 01	concolor 01	Linnaeus	Mountain Lion
		Lynx 02	lynx 01 rufus 02	(Linnaeus) (Schreber)	Lynx Bobcat
Artiodactyla 07	Cervidae 01	Odocoileus 01	hemionus 01 virginianus 02	(Rafinesque) (Zimmerman)	Mule Deer White-tailed Deer
		Cervus 02	canadensis 01		Wapiti/Elk
		Alces 03	alces 01		Moose
		Rangifer 04	tarandus 01		Caribou
	Bovidae 02	Bison 01	bison 01	(Linnaeus)	Bison

Class 01: Mammalian Continued

<u>ORDER</u>	<u>FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Artiodactyla 07	Bovidae 02	Bos 02	tauros 01		Domestic Cow
		Capra 03	hirca 01		Goat
		Ovis 04	aries 01		Sheep
	Suidae 03	Sus 01	scrofa 01		Pig
	Antilocapridae 04	Antilocapra 01	americana 01		Pronghorn
Perissodactyla 06	Equidae 01	Equus 01	caballus 01		Horse
Large 09					
Large-medium 10					
Medium 11					
Medium-small 12					
Small 13					

Class 03: Avian

<u>ORDER</u>	<u>FAMILY</u>	<u>SUB-FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Gaviiformes 01	Gaviidae 01		Gavia 01	immer 01	(Brunnich)	Common Loon
Podicipediformes 02	Podicipedidae 01		Podiceps 01	grisegena 01	(Boddaert)	Red-necked Grebe
			Podiceps 01	auritus 02	(Linnaeus)	Homed Grebe
			Podilymbus 02	podiceps 01	(Linnaeus)	Pied-Billed Grebe
Pelecaniformes 03	Pelecanidae 01		Pelecanus 01	erythrorhynchos 01	Gmelin	White Pelican
	Phalacrocoracidae 02		Phalacrocorax 01	auritus 01	(Lesson)	Double-crested cormorant
Ciconiiformes 04	Ardeidae 01		Ardea 01	herodias 01	Linnaeus (Linnaeus) (Linnaeus) (Gmelin) (Rackett)	Great Blue Heron Common Egret Blk-crowned night Heron Loast Bittern American Bittern
			Casmerodius 02	albus 01		
			Nycticorax 03	nycticorax 01		
			Ixobrychus 04	exilis 01		
			Botaurus 05	lentiginosus 01		
Anseriformes 05	Anatidae 01	Cygninae 02	Olor 01 Olor 01	columbianus 01 buccinator 02	(Ord) (Richardson)	Whistling Swan Trumpeter Swan (M)
		Anserinae 03	Branta 01 Anser 02 Anser 02 Chen 03 Chen 03	canadensis 01 albifrons 01 domesticus 02 caerulescens 01 rossii 02	(Linnaeus) (Scopoli) (Linnaeus) (Cassin)	Canada Goose White-fronted Goose (f) Domestic Goose Snow Goose (M) Ross's Goose (M)

Class 03: Avian continued

<u>ORDER</u>	<u>FAMILY</u>	<u>SUB-FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>		
Anseriformes 05	Anatidae 01	Anatinae 04	Anas 01	platyrhynchos 01	Linnaeus	Mallard		
			Anas 01	rubripes 02	Brewster	Black Duck		
			Anas 01	strepera 03	Linnaeus	Galdwell		
			Anas 01	acuta 04	Linnaeus	Pintail		
			Anas 01	carolinensis 05	Gmelin	Green-Winged Teal		
			Anas 01	discors 06	Linnaeus	Blue-Winged Teal		
			Anas 01	boschas domestica 07		Domestic Duck		
			Mareca 02	americana 01	(Gmelin)	American Widgeon		
			Spatula 03	clypeata 01	(Linnaeus)	Shoveler		
			Aix 04	sponsa 01	(Linnaeus)	Wood Duck		
		Aythyinae 05	Aythya 01	americana 01	(Eyton)	Redhead		
			Aythya 01	collaris 02	(Donovan)	Ring-necked Duck		
			Aythya 01	valisineria 03	(Wilson)	Canvasback		
			Aythya 01	affinis 04	(Eyton)	Lesser Scaup		
			Bucephala 02	clangula 01	(Linnaeus)	Common Golden Eye		
			Bucephala 02	albeola 02	(Linnaeus)	Bufflehead		
			Melanitta 03	deglandi 01	(Bonaparte)	White-winged Scoter		
			Oidemia 04	nigra 01	(Linnaeus)	Common Scoter		
			Oxyurinae 06	Oxyura 01	jamaicensis 01		(Gmelin)	Ruddy Duck
Merginae 07	Lophodytes 01	cucullatus 01	(Linnaeus)	Hooded Merganser				
					Mergus 02	merganser 01	Linnaeus	Common Merganser
					Mergus 02	serrator 02	Linnaeus	Red-breasted Merganser
Falconiformes 06	Cathartidae 01		Cathartes 01	aura 01	(Linnaeus)	Turkey Vulture		
	Accipitridae 01		Accipiter 01 Accipiter 01	gentilis 01 striatus 02	(Linnaeus) Vieillot	Goshawk Sharp-shinned Hawk		

Class U3: Avian continued

<u>ORDER</u>	<u>FAMILY</u>	<u>SUB-FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Charadriiformes 09	Charadriidae 01		Charadrius 01 Charadrius 01	melodus 01 vociferus 02	Ord Linnaeus	Piping Plover Killdear
	Scolopacidae 02		Scolopax 01 Scolopax 01 Numenius 02 Bartramia 03 Actitis 04 Limosa 05	minor 01 rusticola 02 americanus 01 longicauda 01 macularia 01 fedoa 01	(Gmelin) Linnaeus Bechstein (Bechstein) (Linnaeus) (Linnaeus)	American Woodcock European Woodcock Long-billed Curlew Upland Plover Spotted Sandpiper Marbled Godwit
	Recurvirostridae 03		Recurvirostra 01	americana 01	Gmelin	American Avocet
	Phalaropodidae 04		Phalaropus 01	tricolor 01	(Vieillot)	Wilson's Phalarope
	Laridae 05		Larus 01 Larus 01 Larus 01 Larus 01 Sterna 02 Sterna 02 Chlidonias 03	argentatus 01 californicus 02 delawarensis 03 pipixcan 04 philadelphia 05 forsteri 01 hirundo 02 niger 01	Pontoppidan Lawrence Ord Wagler (Ord) Nuttall Linnaeus (Linnaeus)	Herring Gull California Gull Ring-billed Gull Franklin's Gull Bonaparte's Gull Forester's Tern Common Tern Black Tern
Columbiformes 10	Columbidae 01		Columba 01 Zenaida 02 Ectopistes 03	livia 01 macroura 01 migratorius 01	Gmelin (Linnaeus) (Linnaeus)	**Rock Dove Mourning Dove Passenger Pigeon

Class 03: Avian continued

<u>ORDER</u>	<u>FAMILY</u>	<u>SUB-FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Cuculiformes 11	Cuculidae 01		Coccyzus 01	americanus 01	(Linnaeus)	Yellow-billed Cuckoo
			Coccyzus 01	erythrophthalmus 02	(Wilson)	Black-billed Cuckoo
Strigiformes 12	Strigidae 01		Otus 01	asio 01	(Linnaeus)	Screech Owl
			Bubo 02	virginianus 01	(Gmelin)	Great Horned Owl
			Nyctea 03	scandiac 01	(Linnaeus)	Snowy Owl
			Surnia 04	ulula 01	(Linnaeus)	Hawk Owl (N. Hawk Owl)
			Speotyto 05	cunicularia 01	(Molina)	Burrowing Owl
			Strix 06	varia 01	Barton	Barred Owl
			Strix 06	nebulosa 02	Forster	Great Gray Owl
			Asio 07	otus 01	(Linnaeus)	Long-eared Owl
			Asio 07	flammeus 02	(Pontoppidan)	Short-eared Owl
			Aegolius 08	funereus 01	(Linnaeus)	Boreal Owl
Aegolius 08	acadicus 02	(Gmelin)	Saw-whet Owl			
Caprimulgiformes 13	Caprimulgidae 01		Caprimulgus 01	vociferus 01	Wilson	Whip-poor-will
			Chordeiles 02	minor 01	(Forster)	Common Nighthawk
Apodiformes 14	Apodidae 01		Chaetura 01	pelagica 01	(Linnaeus)	Chimney Swift
	Trochilidae 02		Archilochus 01	colubris 01	(Linnaeus)	Ruby-Throated Hummingbird
Coraciiformes 15	Alcedinidae 01		Ceryle 01	alcyon 01	(Linnaeus)	Belted Kingfisher
Piciformes 16	Picidae		Colaptes 01	auratus 01	(Linnaeus)	Yellow-shafted Flicker
			Dryocopus 02	pileatus 01	(Linnaeus)	Pileated Woodpecker
			Melanerpes 03	erythrocephalus 01	(Linnaeus)	Red-headed Woodpecker
			Sphyrapicus 04	varius 01	(Linnaeus)	Yellow-billed Woodpecker
			Picoides 05	villosus 01	(Linnaeus)	Hairy Woodpecker
			Picoides 05	pubescens 02	(Linnaeus)	Down Woodpecker
			Picoides 05	arcticus 03	(Swainson)	Black-backed Woodpecker
			Picoides 05	tridactylus 04	(Linnaeus)	Three-toed Woodpecker

Class 03: Avian continued

<u>ORDER</u>	<u>FAMILY</u>	<u>SUB-FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Passeriformes 17	Tyrannidae 01		Tyrannus 01	tyrannus 01	(Linnaeus)	Eastern Kingbird
			Tyrannus 01	verticalis 02	Say	Western Kingbird
			Myiarchus 02	crinitus 01	(Linnaeus)	Great Crested Flycatcher
			Sayornis 03	phoebe 01	(Latham)	Eastern Phoebe
			Empidonax 04	traillii 01	(Audubon)	Willow Flycatcher
			Empidonax 04	minimus 02	(Baird & Baird)	Least Flycatcher
			Contopus 05	virens 01	(Linnaeus)	Eastern Wood Pewee
			Contopus 05	borealis 02	(Swainson)	Olive-sided Flycatcher
	Alaudidae 02		Eremophila 01	alpestris 01	(Linnaeus)	Horned Lark
	Hirundinidae 03		Iridoprocne 01	bicolor 01	(Vieillot)	Tree Swallow
		Riparia 02	riparia 01	(Linnaeus)	Bank Swallow	
		Stelgidopteryx 03	serripennis 01	(Audubon)	Rough-Winged Swallow	
		Hirundo 04	rustica 01	Linnaeus	Barn Swallow	
		Hirundo 05	pyrrhonota 02	Vieillot	Cliff Swallow	
		Progne 05	subis 01	(Linnaeus)	Purple Martin	
	Corvidae 04		Perisoreus 01	canadensis 01	(Linnaeus)	Gray Jay
		Cyanocitta 02	cristata 01	(Linnaeus)	Blue Jay	
		Pica 03	pica 01	(Linnaeus)	Black-billed Magpie	
		Corvus 04	corax 01	Linnaeus	Common Raven	
		Corvus 04	brachyrhynchos 02	Brehm	American Crow	
	Paridae 05		Parus 01	atricapillus 01	Linnaeus	Black-capped Chickadee
			Parus 01	hudsonicus 02	Forster	Boreal Chickadee
	Sittidae 06		Sitta 01	carolinensis 01	Latham	White-breasted Nuthatch
			Sitta 01	canadensis 02	Linnaeus	Red-breasted Nuthatch

Class 03: Avian continued

<u>ORDER</u>	<u>FAMILY</u>	<u>SUB-FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Passeriformes 17	Certhiidae 07		Certhia 01	americana 01	Linnaeus	Brown Creeper
	Troglodytidae 08		Troglodytes 01 Troglodytes 01 Cistothorus 02 Cistothorus 02	aedon 01 troglodytes 02 palustris 01 platensis 02	Vieillot (Linnaeus) (Wilson) (Latham)	House Wren Winter Wren Marsh Wren Sedge Wren
	Mimidae 09		Mimus 01 Dumetella 02 Toxostoma 03	polyglottos 01 carolinensis 01 rufum 01	(Linnaeus) (Linnaeus) (Linnaeus)	Northern Mockingbird Catbird Brown Thrasher
	Turdidae 10		Turdus 01 Catharus 02 Catharus 02 Catharus 02 Sialia 03 Sialia 03	migratorius 01 guttata 01 ustulata 02 fuscescens 03 sialis 01 currucoides 02	Linnaeus (Pallas) (Nuttall) (Stephens) (Linnaeus) (Bechstein)	American Robin Hermit Thrush Swainson's Thrush Veery Eastern Bluebird Mountain Bluebird
	Sylviidae 11		Regulus 01 Regulus 01	satrapa 01 calendula 02	Lichtenstein (Linnaeus)	Golden-Crowned Kinglet Ruby-Crowned Kinglet
	Motacillidae 12		Anthus 01	spragueii 01	(Audubon)	Sprague's Pipit
	Bombycillidae 13		Bombycilla 01	cedrorum 01	Vieillot	Cedar Waxwing
	Laniidae 14		Lanius 01	ludovicianus 01	Linnaeus	Loggerhead Shrike

Class 03: Avian continued

ORDERPasseriformes
17

<u>FAMILY</u>	<u>SUB-FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Sturnidae 15		Sturnus ol	vulgaris 01	Linnaeus	**Comon Starling
Vireonidae 16		Vireo 01 Vireo 01 Vireo 01 Vireo 01 Vireo 01	flavifrons 01 solitarius 02 olivaceus 03 philadelphicus 04 gilvus 05	Vieillot (Wilson) (Linnaeus) (Cassin) (Vieillot)	Yellow-throated Vireo Solitary Vireo Red-eyed Vireo Philadelphia Vireo Warbling Vireo
Parulidae 17		Mniotilta 01 Vermivora 02 Vermivora 02 Vermivora 02 Vermivora 02 Parula 03 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Dendroica 04 Seiurus 05 Seiurus 05 Oporonis 06 Oporonis 06 Geothlypis 07 Wilsonia 08 Wilsonia 08 Setophagia 09	varia 01 chrysoptera 01 peregrina 02 celata 03 ruticapilla 04 americana 01 petechia 01 magnolia 02 tigrina 03 coronata 04 virens 05 fusca 06 pennsylvanica 07 castanea 08 palmarum 09 aurocapillus 01 novaboracensis 02 agilis 01 philadelphia 02 trichas 01 pusilla 01 canadensis 02 ruticilla 01	(Linnaeus) (Linnaeus) (Wilson) (Say) (Wilson) (Linnaeus) (Linnaeus) (Wilson) (Gmelin) (Linnaeus) (Gmelin) (Müller) (Linnaeus) (Wilson) (Gmelin) (Linnaeus) (Wilson) (Gmelin) (Linnaeus) (Gmelin) (Wilson) (Wilson) (Linnaeus) (Wilson) (Linnaeus) (Linnaeus) (Linnaeus)	Black & White Warbler Golden-winger Warbler Tennessee Warbler Orange-crowned Warbler Nashville Warbler Paulina Warbler Yellow Warbler Magnolia Warbler Cape May Warbler Yellow Rumped Warbler Blk-throated Grn. Warbler Blackburnian Warbler Chestnut-sided Warbler Bay-Breasted Warbler Palm Warbler Ovenbird Northern Waterthrush Connecticut Warbler Mourning Warbler Common Yellowthroat Wilson's Warbler Canada Warbler American Redstart
Icteridae 18		Dolichonyx 01 Sturnella 02 Xanthocephalus 03	oryzivorous 01 neglecta 01 xanthocephalus 01	(Linnaeus) Audubon (Bonaparte)	Bobolink Western Meadowlark Yellow-headed Blackbird

Class 03: Avian continued

<u>ORDER</u>	<u>FAMILY</u>	<u>SUB-FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>		
Passeriformes 17	Icteridae 18		Agelaius 04	phseniceus 01	(Linnaeus)	Red-winged Blackbird		
			Lcterus 05	galbula 01	(Linnaeus)	Northern Oriole		
			Euphagus 06	carolinus 01	(Müller)	Rusty Blackbird		
			Euphagus 06	cyanocephalus 02	(Wagler)	Brewer's Blackbird		
			Quiscalus 07	quiscula 01	(Linnaeus)	Common Grackle		
			Molothrus 08	ater 01	(Boddaert)	Brown-headed Cowbird		
		Frigillidae 19			Cardinalis 01	cardinalis 01	(Linnaeus)	Cardinal
					Pheucticus 02	ludovicianus 01	(Linnaeus)	Rose-breasted Grosbeak
	Passerina 03			cyanea 01	(Linnaeus)	Indigo Bunting		
	Spiza 04			americana 01	(Gmelin)	Dickcissel		
	Coccothraustes 05			vespertinus 01	(Cooper)	Evening Grosbeak		
	Carpodacus 06			purpureus 01	(Gmelin)	Purple Finch		
	Spinus 07			pinus 01	(Wilson)	Pine Siskin		
	Spinus 07			tristis 02	(Linnaeus)	American Goldfinch		
	Loxia 08			curvirostra 01	(Linnaeus)	Red Crossbill		
	Pipilo 09			erythrophthalmus 01	(Linnaeus)	Rufous-sided Towhee		
	Passerculus 10			sandwichensis 01	(Gmelin)	Savannah Sparrow		
	Ammodramus 11			savannarum 01	(Gmelin)	Grasshopper Sparrow		
	Ammodramus 11			bairdii 02	(Audubon)	Baird's Sparrow		
	Passerherbulus 12			caudacutus 01	(Latham)	Le Conte's Sparrow		
	Ammodramus 13			caudacutus 01	(Gmelin)	Sharp-tailed Sparrow		
	Poocetes 14			gramineus 01	(Gmelin)	Vesper Sparrow		
	Chondestes 15			grammacus 01	(Say)	Lark Sparrow		
	Junco 16			hyemalis 01	(Linnaeus)	Slate-Colored Junco		
	Spizella 17			passerina 01	(Bechstein)	Chipping Sparrow		
	Spizella 17			pallida 02	(Swainson)	Clay-colored Sparrow		
	Spizella 17			pusilla 03	(Wilson)	Field Sparrow		
	Zonotrichia 18			albicollis 01	(Gmelin)	White-throated Sparrow		
	Melospiza 19			lincolni 01	(Audubon)	Lincoln's Sparrow		
	Melospiza 19			georgiano 01	(Latham)	Swamp Sparrow		
	Melospiza 19			Melodia 01	(Wilson)	Song Sparrow		

TAXON CODES - OSTEICHTHYES (CLASS 04)

<u>ORDER</u>	<u>FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Petromyzontiformes 01	Petromyzontidae 01	Ichthyomyzon 01	castaneus 01 unicuspis 02	Girard Hubbs & Trautman	Chestnut Lamprey Silver Lamprey
Acipenseriformes 02 (Chondrostei)	Acipenseridae 01	Acipenser 01	fulvescens 01	Rafinseque	Lake Sturgeon
Clupeiformes 03	Salmonidae 01	Salmo 01 Salvelinus 02 Coregonus 03	gairdneri 01	Richardson (Walbaum) Leseur (Gill) (Jordan & Evermann) (Mitchell)	Rainbow Trout Lake Trout Cisco, Lake Herring Blackfin Cisco Shortjaw Cisco Lake Whitefish
			namaycush 01		
			artedii 01		
			nigripinnis 02		
zenithicus 03	(Rafinesque) Lesueur	Goldeye Mooneye			
clupeaformis 04					
Hiodontidae 02			Hiodon 01	slosoides 01 tergisus 02	
Umbridae 03			Umbra 01	limi 01	(Kirtland)	Central Mudminnow
	Esocidae 04	Esox 01	lucius 01	(Linnaeus)	Northern Pike
Cypriniformes 04	Cyprinidae 01	Couesius 01	plumbeus 01	(Agassiz)	Lake Chub
		**Cyprinus 02	carpio 01	Linnaeus	Carp
		Hybopsis 03	storeriana 01	(Kirtland)	Silver Chub
		Nocomis 04	biguttatus 01	(Kirtland)	Hornyhead Chub
		Notemigonus 05	crysoleucas 01	(Mitchell)	Golden Shiner
		Notropis 06	antherinoides 01	Rafinesque	Emerald Shiner
			blennius 02	(Girard)	River Shiner
		cornutus 03	(Mitchill)	Common Shiner	
		heterolepis 04	Eigenmann & Eigenmann	Blacknose Shiner	
		hudsonius 05	(Clinton)	Spottail Shiner	
		rubellus 06	(Agassiz)	Rosyface Shiner	

TAXON CODES - OSTEICHTHYES (CLASS 04) CONTINUED

<u>ORDER</u>	<u>FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Cypriniformes 04	Cyprinidae 01	Notropis 06	stramineus 07 volucellus 08	(Cope) (Cope)	Sand Shiner Mimic Shiner
		Pimephales 07	notatus 01 promelas 02	(Rafinesque) (Rafinesque)	Bluntnose Minnow Fathead Minnow
		Platygobio 08 Rhinichthys 09 Semotilus 10	gracilis 01 atratus 01 cataractae 02 atromaculatus 01 margarita 02	(Richardson) (Hermann) (Valenciennes) (Mitchill) (Cope)	Flathead Chub (Rare) Blacknose Dace Longnose Dace Creek Chub Pearl Dace
	Catostomidae 02	Carpiodes 01 Catostomus 02 Ictiobus 03 Moxostoma 04	cyprinus 01 catostomus 01 commersoni 02 cyprinellus 01 anisurum 01 macrolepidotum 02	(Lesueur) (Forster) (Lacépède) (Valenciennes) (Rafinesque) (Lesueur)	Quillback Longnose Sucker White Sucker Bigmouth Buffalo (rare) Silver Redhorse Shorthead Redhorse
	Ictaluridae 03	Ictalurus 01 Noturus 02	melas 01 nebulosus 02 punctatus 03 flavus 01 gyrinus 02	(Rafinesque) (Lesueur) (Rafinesque) (Rafinesque) (Mitchell)	Black Bullhead Brown Bullhead Channel Catfish Stonecat Tadpole Madtom
Cyprinodontiformes 05	Cyprinodontidae 01	Fundulus 01	diaphanus 01	(Lesueur)	Banded Killifish
Gadiformes 06	Gadidae 01	Lota 01	lota 10	(Linnæus)	Burbot
Gasterosteiformes 07	Gasterosteidae 01	Culaea 01 Pungitius 02	inconstans 01 pungitius 01	(Kirtland) (Linnæus)	Brook Stickleback Ninespine Stickleback

TAXON CODES - OSTEICHTHYES (LCASS 04) CONTINUED

<u>ORDER</u>	<u>FAMILY</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>DISCOVERER</u>	<u>COMMON NAME</u>
Percopsiformes 08	Percopsidae 01	Percopsis 01	omiscomaycus 01	(Walbaum)	Trout-perch
Perciformes 09	Percichthyidae 01	Morone 01	chrysops 01	(Rafinesque)	White Bass (First reported in 1963)
	Centrarchidae 01	Ambloplites 01	rupestris 01	(Rafinesque)	Rock Bass
		Lepomis 02	gibbosus 01	(Linnaeus)	Pumpkinseed
		Micropterus 03	macrochirus dolomieu salmoides	Raphinesque Lacepede (Lacepede)	Bluegill (In Red River-USA) Smallmouth bass Largemouth bass
		Pomoxis 04	nigromaculatus 01	(Lesueur)	Black Crappie
Percidae 02	Perca 01 Stizostedion 02 Etheostoma 03 Percina 04	flavescens 01	(Mitchell)	Yellow Perch	
		canadense 01	(Smith)	Sauger	
		vitreum 02	(Mitchill)	Walleye	
		exile 01	(Girard)	Iowa Darter	
		nigrum 02	Rafinesque	Johnny Darter	
caprodes 01	(Rafinesque)	Logperch			
maculata 02	(Girard)	Blackside Darter			
shumardi 03	(Girard)	River Darter			
Sciaenidae 03	Aplodinotus 01	grunniens 01	Rafinesque	Freshwater Drum	
Cottidae 04	Cottus 01 Myoxocephalus 02	bairdi 01	Girard	Mottled Sculpin	
		cognatus 02	Ricardson	Slimy Sculpin	
		ricei 03	(Nelson)	Spoonhead Sculpin	
		quadricornis 01	(Linnaeus)	Deepwater Sculpin	

Appendix C

ANATOMICAL ELEMENTS COMPUTER CODING SYSTEM

FIELD		BODY PART
10000		ZONE HEAD
10001		TEMPORAL CONDYLE
10002		TONGUE BONE
11000	CRA	CRANIAL INDET OR CRANIUM COMPLETE
11001	BCS	BRAINCASE
11002	PMX	PREMAXILLA
11003	PMXT	PREMAXILLA WITH TEETH
11004	MAX	MAXILLA
11005	MAXT	MAXILLA WITH TEETH
11006	PAL	PALATINE
11007	VOM	VOMER
11008	NAS	NASAL
11009	SPH	SPHENOID
11010	ETH	ETHMOID
11011	LAC	LACRIMAL
11012	FRN	FRONTAL
11013	HCO	HORNCORE
11014	HSB	HORN SHEATH
11015	JUG	JUGAL = MALAR
11016	ZYG	ZYGOMATIC ARCH
11017	ORB	ORBITAL REGION
11018	TEM	TEMPORAL
11019	SQA	SQUAMOSAL
11020	PAR	PARIETAL
11021	OCC	OCCIPITAL
11022	BOC	BASIOCCIPITAL
11023	PCM	OCCIPITAL CONDYLE
11024	MAS	MASTOID PROCESS OR REGION
11025	PET	PETROSAL
11026	BUL	BULLA=PETROUS TYMPANIC OR AUDITORY BULLA
11027	PAS	PARASHENOID
11028	ALS	ALISHENOID
11029	DET	DERMETHMOID

(Source: Gifford and Crader, 1977: 225-238)

11030	LET	LATERAL ETHMOID
11031	PRT	FARETHMOID
11032	PFR	PREFRONTAL
11033	SPO	SPHENOTIC
11034	PRO	PROOTIC
11035	PTO	PTEROTIC
11036	EPO	EPIOTIC
11037	SOC	SUPRAOCCIPITAL
11038	XOC	EXOCCIPITAL
11039	COB	CIRCUMORBITAL
11040	HYQ	UNIT HYM SYP MPT QUA
11041	HYM	HYOMANDIBULAR
11042	SYP	SYMPLECTIC
11043	MPT	METAPTERYGOID
11044	QUA	QUADRATE
11045	PTG	PTERYGOID
11046	EPT	ENTOPTERYGOID
11047	SMX	SUPRAMAXILLA
11048	OPS	UNIT OPR POP IOP SOP
11049	OPR	OPERCULUM
11050	POP	PRFOPERCULUM
11051	IOP	INTERIPERCULLUM
11052	SUP	SUBOPERCULUM
11053	HYA	UNIT BHY CHY EHY
11054	BHY	BASIHVAL
11055	CHY	CERATOHVAL
11056	EHY	EPIHVAL
11057	UHY	UROHVAL
11058	BRN	BRANCHIOSTEGAL
11059	QJU	QUADRATOJUGAL
11060	LAC	LACRIMAL
11061	SOR	SUPRAORBITAL
11062	OTO	OTOLITH
11063	PST	POST TEMPORAL
11064	PSF	UNIT PARIETAL SPHENOTIC FRONTAL
11065	OTP	UNIT OCCIPITAL L. & R. PARIETAL
11066	PET	PETROUS PORTION OF THE TEMPORAL BONE
11067	MTP	MASTOID PROCESS, BULLAE AND ZYGOMA
11068	SOP	SUPRAOCCIPITAL AND R. PARIETAL
11069	PTP	UNIT PTEROTIC AND PERIETAL
11070	CTE	UNIT CERATHIVAL AND EPIHVAL

12000 MAN MANDIBLE INDET OR COMPLETE
12001 MANT MANDIBLE WITH TEETH
12002 SYM SYMPHYSIS
12003 SYMT SYMPHYSIS WITH TEETH
12004 DEN DENTARY OR CORPUS
12005 DENT DENTARY WITH TEETH
12006 ANG ANGLE OR ANGULAR
12007 SAN SURANGULAR
12008 RAM RAMUS
12009 CRN CORONOID PROCESS
12010 ART ARTICULAR CONDYLE OR ARTICULAR
12011 PRT PREARTICULAR
12012 ALV ALVEOLUS UPPER OR LOWER INDET

13000 TTH TOOTH INDET
13001 ROT ROOT INDET

13010 I INCISOR INDET UPPER OR LOWER INDET
13011 DI DECIDUOUS INCISOR INDET UPPER OR LOWER INDET

13020 C CANINE UPPER OR LOWER INDET
13021 DC DECIDUOUS CANINE UPPER OR LOWER INDET

13030 P PREMOLAR INDET UPPER OR LOWER INDET

13040 DP DECIDUOUS PREMOLAR INDET UPPER OR LOWER INDET

13043 DPM DECIDUOUS THIRD PREMOLAR UPPER OR LOWER INDET

13050 M MOLAR INDET UPPER OR LOWER INDET
13051 MI FIRST MOLAR UPPER OR LOWER INDET
13053 MT THIRD MOLAR UPPER OR LOWER INDET
13060 CTH CHEEKTOOTH INDET UPPER OR LOWER INDET
13070 THR TOOTHROW UPPER OR LOWER INDET
13071 DTHR DECIDUOUS TOOTHROW UPPER OR LOWER INDET

13110 UIO UPPER INCISOR INDET
13111 UII UPPER INCISOR 1
13112 UI2 UPPER INCISOR 2
13113 UI3 UPPER INCISOR 3
13114 UI4 UPPER INCISOR 4
13115 DUIO DECIDUOUS UPPER INCISOR INDET
13116 DUI1 DECIDUOUS UPPER INCISOR 1
13117 DUI2 DECIDUOUS UPPER INCISOR 2
13118 DUI3 DECIDUOUS UPPER INCISOR 3
13119 DUI4 DECIDUOUS UPPER INCISOR 4
13120 UC UPPER CANINE
13121 DUC DECIDUOUS UPPER CANINE

13130 UPO UPPER PREMOLAR INDET
13131 UP1 UPPER PREMOLAR 1
13132 UP2 UPPER PREMOLAR 2
13133 UP3 UPPER PREMOLAR 3
13134 UP4 UPPER PREMOLAR 4
13135 UP34 UPPER PREMOLAR 3 OR 4

13140 DUPO DECIDUOUS UPPER PREMOLAR INDET
13141 DUP1 DECIDUOUS UPPER PREMOLAR 1
13142 DUP2 DECIDUOUS UPPER PREMOLAR 2
13143 DUP3 DECIDUOUS UPPER PREMOLAR 3
13144 DUP4 DECIDUOUS UPPER PREMOLAR 4

13150 UMO UPPER MOLAR INDET
13151 UM1 UPPER MOLAR 1
13152 UM2 UPPER MOLAR 2
13153 UM3 UPPER MOLAR 3
13154 UM12 UPPER MOLAR 1 OR 2
13155 UM23 UPPER MOLAR 2 OR 3

13160 UCH UPPER CHEEKTOOTH INDET

13170 UTHR UPPER TOOTHROW
13171 DUTR DECIDUOUS UPPER TOOTHROW

13210 LIO LOWER INCISOR INDET
13211 LI1 LOWER INCISOR 1
13212 LI2 LOWER INCISOR 2
13213 LI3 LOWER INCISOR 3
13214 LI4 LOWER INCISOR 4
13215 DLIO DECIDUOUS LOWER INCISOR INDET
13216 DLI1 DECIDUOUS LOWER INCISOR 1
13217 DLI2 DECIDUOUS LOWER INCISOR 2
13218 DLI3 DECIDUOUS LOWER INCISOR 3
13219 DLI4 DECIDUOUS LOWER INCISOR 4
12220 LC LOWER CANINE
13221 DLC DECIDUOUS LOWER CANINE

13230 LPO LOWER PREMOLAR INDET
13231 LP1 LOWER PREMOLAR 1
13232 LP2 LOWER PREMOLAR 2
13233 LP3 LOWER PREMOLAR 3
13234 LP4 LOWER PREMOLAR 4
13235 LP34 LOWER PREMOLAR 3 OR 4

13240 DLPO DECIDUOUS LOWER PREMOLAR INDET
13241 DLP1 DECIDUOUS LOWER PREMOLAR 1
13242 DLP2 DECIDUOUS LOWER PREMOLAR 2
13243 DLP3 DECIDUOUS LOWER PREMOLAR 3
13244 DLP4 DECIDUOUS LOWER PREMOLAR 4

13250 LMO LOWER MOLAR INDET
13251 LM1 LOWER MOLAR 1
13252 LM2 LOWER MOLAR 2
13253 LM3 LOWER MOLAR 3
13254 LM12 LOWER MOLAR 1 OR 2
13255 LM23 LOWER MOLAR 2 OR 3

13260 LCH LOWER CHEEKTOOTH INDET

13270 LTHR LOWER TOOTHROW
13271 DLTR DECIDUOUS LOWER TOOTHROW

14000 HYO HYOID

20000 AXL AXIAL INDET

21000 VRT VERTEBRA INDET
21001 VRTR VERTEBRAL ROW ARTICULATER INDET OR MIXED
21002 CEN CENTRUM INDET
21003 CENE CENTRUM EPIPHYSIS INDET

21100 CER CERVICAL VERTEBRA INDET
21101 ATL ATLAS CERVICAL VERTEBRA 1
21102 AXI AXIS CERVICAL VERTEBRA 2
21103 CER3 CERVICAL VERTEBRA 3
21104 CER4 CERVICAL VERTEBRA 4
21105 CER5 CERVICAL VERTEBRA 5
21106 CER6 CERVICAL VERTEBRA 6
21107 CER7 CERVICAL VERTEBRA 7
21108 CERR CERVICAL ROW ARTICULATED
21109 CERC CERVICAL CENTRUM
21110 CERF CERVICAL CENTRUM EPIPHYSIS

21200 THORACIC VERTEBRA INDET
21201 TH01 THORACIC VERTEBRA 1
21202 TH02 THORACIC VERTEBRA 2
21203 TH03 THORACIC VERTEBRA 3
21204 TH04 THORACIC VERTEBRA 4
21205 TH05 THORACIC VERTEBRA 5
21206 TH06 THORACIC VERTEBRA 6
21207 TH07 THORACIC VERTEBRA 7
21208 TH08 THORACIC VERTEBRA 8
21209 TH09 THORACIC VERTEBRA 9
21210 TH010 THORACIC VERTEBRA 10
21211 TH011 THORACIC VERTEBRA 11
21212 TH012 THORACIC VERTEBRA 12
21213 TH013 THORACIC VERTEBRA 13
21214 TH014 THORACIC VERTEBRA 14
21215 TH015 THORACIC VERTEBRA 15
21216 TH016 THORACIC VERTEBRA 16
21217 TH017 THORACIC VERTEBRA 17
21218 TH018 THORACIC VERTEBRA 18
21219 TH0L LAST THORACIC VERTEBRA
21220 THOR THORACIC ROW ARTICULATED
21221 THOC THORACIC CENTRUM
21222 THEC THORACIC CENTRUM EPIPHYSIS
21223 TVS THORACIC VERTEBRAL SPINE
21224 TTP THORACIC TRANSVERSE PROCESS
21225 TRK TRUNK VERTEBRA
21226

21300 LUM LUMBAR VERTEBRA INDET
21301 LUM1 LUMBAR VERTEBRA 1
21302 LUM2 LUMBAR VERTEBRA 2
21303 LUM3 LUMBAR VERTEBRA 3
21304 LUM4 LUMBAR VERTEBRA 4
21305 LUM5 LUMBAR VERTEBRA 5
21306 LUM6 LUMBAR VERTEBRA 6
21307 LUM7 LUMBAR VERTEBRA 7
21308 LUML LAST LUMBAR VERTEBRA
21309 LUMR LUMBAR ROW ARTICULATED
21310 LUMC LUMBAR CENTRUM
21311 LUME LUMBAR CENTRUM EPIPHYSIS
21312 LTP LUMBAR TRANSVERSE PROCESS
21313 LUMA LUMBAR VERTEBRA ANTERIOR
21314 LUMP LUMBAR VERTEBRA POSTERIOR
21315

21400 SAC SACRUM COMPLETE OR SACRAL VERTEBRA INDET
21401 SAC1 SACRAL VERTEBRA 1
21402 SAC2 SACRAL VERTEBRA 2
21403 SAC3 SACRAL VERTEBRA 3
21404 SAC4 SACRAL VERTEBRA 4
21405 SAC5 SACRAL VERTEBRA 5
21406 SACL LAST SACRAL VERTEBRA
21407 SACC SACRAL CENTRUM
21408 SACE SACRAL CENTRUM EPIPHYSIS
21409 SACR SACRAL VERTEBRA 4 AND 5

21500 CAU CAUDAL VERTEBRA
21501 CAUR CAUDAL ROW ARTICULATED
21502 CAUE CAUDAL VERTEBRA EPIPHYSIS
21503 WEB WEBERIAN APPARATUS
21504 CAS CAUDAL VERTEBRA AND ONE SPINE
21505 VEF VERTEBRAL FACET
21506 CAUC CAUDAL VERTEBRAL CENTRUM
21507 SPI SPINE INDET
21508 VER RIB FACET ON A VERTEBRA
21509 CVN CAUDAL VERTEBRA WITH EXPANDED NEURAL SPINE

22000 RIB RIB INDET
22001 RIE RIB EPIPHYSIS

22100 RIBA ANTERIOR RIB
22101 RIB1 FIRST RIB

22200 RIBP POSTERIOR RIB
22201 STR STERNAL RIB
22202 VTR VERTEBRAL RIB

22300 COS COSTAL CARTILAGE

23000 STE STERNUM OR STERNABRAE

24000	MNB	MANUBRIUM
25000	FUR	FURCULUM
26000	BAC	BACULUM
30000	GIR	GIRDLE BONE INDET
31000	PEC	PECTORAL GIRDLE BONE INDET
31010	SCP	SCAPULA INDET OR COMPLETE
31011	SCPG	GLENOID OF SCAPULA
31012	SCPA	ACROMION OF SCAPULA
31013	SCPS	SPINE OF SCAPULA
31014	SCPB	BLADE OF SCAPULA
31020	CLV	CLAVICLE
31030	COR	CORACOID
31040	ICL	INTERCLAVICAL
31050	ACR	ACROMION BONE
31060	CLE	CLEITHRUM
31070	SCL	SUPRACLEITHRUM
31080	PCL	POSTCLEITHRUM
31090	ACO	ANTERIOR CORACOID
32000	PEL	PELVIS INDET OR COMPLETE
32010	ILI	ILIUM
32020	ISC	ISCHIUM
32030	PUB	PUBIS
32040	ILIS	ILIUM PLUS ISCHIUM
32050	ILPB	ILIUM PLUS PUBIS
32060	ISBP	ISCHIUM PLUS PUBIS

32070	ACE	ACETABULUM
32071	AILI	ACETABULUM ILIUM ONLY
32072	AISC	ACETABULUM ISCHIUM ONLY
32073	APUB	ACETABULUM PUBIS ONLY
32074	AISI	ACETABULUM ISCHIUM AND ILIUM ONLY
32075	APIL	ACETABULUM PUBIS AND ILIUM ONLY
32076	APIS	ACETABULUM PUBIS AND ISCHIUM ONLY
32077	APII	ACETABULUM PUBIS ILIUM AND ISCHIUM
32078	IC	ILIA CREST
32080	PPUB	FREPUBIS
40000	LBN	Longbone INDET
41000	FLB	FORELIMB INDET OR ARTICULATED UNIT
41100	HUM	HUMERUS
41200	RAD	RADIUS
41300	ULN	ULNA
41301	ULC	ULNA OLECRANON WITH SIGMOID NOTCH
41302	ULS	ULNA SIGMOID NOTCH ONLY
41402	RUL	RADIO ULNA
40500	MET	METAPODIAL INDET
41500	MCO	METACARPAL DIGIT INDET
41501	MC1	METACARPAL FIRST DIGIT
41502	MC2	METACARPAL SECOND DIGIT
41503	MC3	METACARPAL THIRD DIGIT
41504	MC4	METACARPAL FOURTH DIGIT
41505	MC5	METACARPAL FIFTH DIGIT
41506	MCM	MAIN METACARPAL
41507	MCA	ACCESSORY METACARPAL
41508	CMC	CARPOMETACARPUS
42000	HLB	HINDLIMB INDET OR ARTICULATED UNIT
42100	FEM	FEMUR
42101	FEE	FEMUR EPIPHYSIS
42200	TIB	TIBIA
42201	TIE	TIBIA EPIPHYSIS

42300	FIB	FIBULA OR LATERAL MALLEOLUS
42400	TBT	TIBIOTARSUS
42500	MTO	METATARSAL DIGIT INDET
42501	MT1	METATARSAL FIRST DIGIT
42502	MT2	METATARSAL SECOND DIGIT
42503	MT3	METATARSAL THIRD DIGIT
42504	MT4	METATARSAL FOURTH DIGIT
42505	MT5	METATARSAL FIFTH DIGIT
42506	MTM	MAIN METATARSAL CANNON BONE
42507	MTA	ACCESSORY METATARSAL
42508	TMT	TARSOMETATARSUS
42600	PAT	PATELLA
50000	POD	PODIAL INDET
51000	CAR	CARPAL OR MANUS BONE INDET
51001	SCA	SCAPHOID
51002	LUN	LUNATE
51003	CUN	CUNEIFORM
51004	MAG	MAGNUM
51005		
51006	PIS	PISIFORM
51007	TZD	TRAPEZOID
51008	TZM	TRAPEZIUM
51009	SCL	SCAPHOLUNAR
51010	RDL	RADIALE
51011	INTC	INTERMEIUM CARPAL
51012	ULR	ULNARE
51013	CNC1	CENTRALE CARPAL 1
51014	CNC2	CENTRALE CARPAL 2
51015	DC1	DISTAL CARPAL 1
51016	DC2	DISTAL CARPAL 2
51017	DC3	DISTAL CARPAL 3
51018	DC4	DISTAL CARPAL 4
51019	NAVI	NAVICULAR OF THE CARPUS
51020	TRI	TRIQUETAL
51021	CAP	CAPITATE
51022	HAM	HAMATE
51023	GMLT	GREATER MULTANGLE
51024	LMLT	LESSER MULTANGLE

50100	PHA	PHALANX INDET
50110	PHA1	FIRST PHALANX DIGIT INDET FRONT OR HIND INDET
50111	PH11	FIRST PHALANX FIRST DIGIT FRONT OR HIND INDET
50112	PH12	FIRST PHALANX SECOND DIGIT FRONT OR HIND INDET
50113	PH13	FIRST PHALANX THIRD DIGIT FRONT OR HIND INDET
50114	PH14	FIRST PHALANX FOURTH DIGIT FRONT OR HIND INDET
50115	PH15	FIRST PHALANX FIRTH FRONT OR HIND INDET
50120	PHA2	SECOND PHALANX DIGIT INDET
50121	PH21	SECOND PHALANX FIRST DIGIT FRONT OR HIND INDET
50122	PH22	SECOND PHALANX SECOND DIGIT FRONT OR HIND INDET
50123	PH23	SECOND PHALANX THIRD DIGIT FRONT OR HIND INDET
50124	PH24	SECOND PHALANX FOURTH DIGIT FRONT OR HIND INDET
50125	PH25	SECOND PHALANX FIFTH DIGIT FRONT OR HIND INDET
50130	PHA3	THIRD PHALANX DIGIT INDET
50132	PH32	THIRD PHALANX SECOND DIGIT FRONT OR HIND INDET
50133	PH33	THIRD PHALANX THIRD DIGIT FRONT OR HIND INDET
50134	PH34	THIRD PHALANX FOURTH DIGIT FRONT OR HIND INDET
50135	PH35	THIRD PHALANX FIFTH DIGIT FRONT OR HIND INDET
50136		
50140	PHA4	FOURTH PHALANX DIGIT INDET FRONT OR HIND INDET
50143	PHA3	FOURTH PHALANX THIRD DIGIT FRONT OR HIND INDET
50144	PHA4	FOURTH PHALANX FOURTH DIGIT FRONT OR HIND INDET
50154	PHA5	FIFTH PHALANX FOURTH DIGIT FRONT OR HIND INDET
51110	FP10	FRONT FIRST PHALANX DIGIT INDET
51111	FP11	FRONT FIRST PHALANX FIRST DIGIT
51112	FP12	FRONT FIRST PHALANX SECOND DIGIT
51113	FP13	FRONT FIRST PHALANX THIRD DIGIT
51114	FP14	FRONT FIRST PHALANX FOURTH DIGIT
51115	FP15	FRONT FIRST PHALANX FIFTH DIGIT
51120	FP20	FRONT SECOND PHALANX DIGIT INDET
51121	FP21	FRONT SECOND PHALANX FIRST DIGIT
51122	FP22	FRONT SECOND PHALANX SECOND DIGIT
51123	FP23	FRONT SECOND PHALANX THIRD DIGIT
51124	FP24	FRONT SECOND PHALANX FOURTH DIGIT
51125	FP25	FRONT SECOND PHALANX FIFTH DIGIT

51130	FP30	FRONT THIRD PHALANX DIGIT INDET
51132	FP32	FRONT THIRD PHALANX SECOND DIGIT
51133	FP33	FRONT THRID PHALANX THIRD DIGIT
51134	FP34	FRONT THIRD PHALANX FOURTH DIGIT
51135	FP35	FRONT THIRD PHALANX FIFTH DIGIT
51140	FP40	FRONT FOURTH PHALANX DIGIT INDET
51143	FP43	FRONT FOURTH PHALANX THIRD DIGIT
51144	FP44	FRONT FOURTH PHALANX FOURTH DIGIT
51154	FP54	FRONT FIFTH PHALANX FOURTH DIGIT
52110	HP10	HIND FIRST PHALANX DIGIT INDET
52111	HP11	HIND FIRST PHALANX FIRST DIGIT
52112	HP12	HIND FIRST PHALANX SECOND DIGIT
52113	HP13	HIND FIRST PHALANX THIRD DIGIT
52114	HP14	HIND FIRST PHALANX FOURTH DIGIT
52115	HP15	HIND FIRST PHALANX FIFTH DIGIT
52120	HP20	SECOND PHALANX DIGIT INDET
52121	HP21	SECOND PHALANX FIRST DIGIT
52122	HP22	SECOND PHALANX SECOND DIGIT
52123	HP23	SECOND PHALANX THRID DIGIT
52124	HP24	SECOND PHALANX FOURTH DIGIT
52125	HP25	SECOND PHALANX FIFTH DIGIT
52130	HP30	HIND THIRD PHALANX DIGIT INDET
52132	HP32	HIND THIRD PHALANX SECOND DIGIT
52133	HP33	HIND THIRD PHALANX THIRD DIGIT
52134	HP34	HIND THIRD PHALANX FOURTH DIGIT
52135	HP35	HIND THIRD PHALANX FIFTH DIGIT
52140	HP40	HIND FOURTH PHALANX DIGIT INDET
52143	HP43	HIND FOURTH PHALANX THIRD DIGIT
52144	HP44	HIND FOURTH PHALANX FOURTH DIGIT
52145	HP45	HIND FOURTH PHALANX FIFTH DIGIT
52150	HP50	HIND FIFTH PHALANX DIGIT INDET
52151	HP51	HIND FIFTH PHALANX FIRST DIGIT
52152	HP52	HIND FIFTH PHALANX SECOND DIGIT
52153	HP53	HIND FIFTH PHALANX THIRD DIGIT
52154	HP54	HIND FIFTH PHALANX FOURTH DIGIT
52155	PEP	PROXIMAL EPIPHYSIS OF PHALANX INDET

52000	TAR	TARSAL OR PES BONE INDET
52001	AST	ASTRAGALUS
52001	CAL	CALCANEUM
52003	NAV	NAVICULAR OF THE TARSUS
52004	CUB	CUBOID
52005	NVC	NAVICULOCUBOID (TARSAL CENTRALE AND FOURTH FUSED)
52006	CUL	MEDIAL CUNEIFORM
52007	CU2	INTERMEDIATE CUNEIFORM
52008	CU3	LATERAL CUNEIFORM
52009	TBL	TIBIALE
52010	INTT	INTERMEDIUM TARSAL
52011	FBR	FIBULARE
52012	CNT	CENTRALE TARSAL
52013	DT1	DISTAL TARSAL 1
52014	DT2	DISTAL TARSAL 2
52015	DT3	DISTAL TARSAL 3
52016	DT4	DISTAL TARSAL 4
52017	TAL	TALUS OF PRIMATES
52018		
50200	SES	SESAMOID INDET
50210	PSS	PROXIMAL SESAMOID MEDIAL LATERAL FRONT HIND INDET
50211	PSM	PROXIMAL SESAMOID MEDIAL FRONT OR HIND INDET
50212	PSL	PROXIMAL SESAMOID LATERAL FRONT OR HIND INDET
50220	DSS	DISTAL SESAMOIDMEDIAL OR LATERAL FRONT OR HIND INDET
50221	DSM	DISTAL SESAMOID MEDIAL FRONT OR HIND INDET
50222	DLS	DISTAL SESAMOID LATERAL FRONT OR HIND INDET
51210	FPSS	FRONT PROXIMAL SESAMOID MEDIAL OR LATERAL INDET
51211	FPSM	FRONT PROXIMAL SESAMOID MEDIAL
51212	FPSL	FRONT PROXIMAL SESAMOID LATERAL
51220	FDSS	FRONT DISTAL SESAMODD MEDIAL OR LATERAL INDET
51221	FDSM	FRONT DISTAL SESAMOID MEDIAL
51222	FDSL	FRONT DISTAL SESAMOID LATERAL
52210	HPSS	HIND PROXIMAL SESAMOID MEDIAL OR LATERAL INDET
52211	HPSM	HIND PROXIMAL SESAMOID MEDIAL
52212	HPSL	HIND PROXIMAL SESAMOID LATERAL
52220	HDSS	HIND DISTAL SESAMOID MEDIAL OR LATERAL INDET
52221	HDSM	HIND DISTAL SESAMOID MEDIAL
52222	HDSL	HIND DISTAL SESAMOID LATERAL

50160 HOOF HOOF COVER

61000 DER DERMAL BONES
61001 RAY FIN RAY
61002 SCU SCUTE
61003 CRP CARAPACE
61004 PLA PLASTRON
61005 SKIN SKIN
61006 SCL SCALE

61100 SPI PECTORAL SPINE

90000 NID TOTALLY NONIDENTIFIABLE

80000 OSC OSSIFIED CARTILAGE
80001 ASF ARTICULAR SURFACE FRAGMENT
80002
80003 ANT ANTLER
80004 CAB CANCELLOUS BONE

FIELD .2 PORTION

01 CO COMPLETE BONE

10 FR FRAGMENT NOT OTHERWISE SPECIFIED
11 PX PROXIMAL ARTICULATION OR END
12 PSH PROXIMAL ARTICULATION PLUS SHAFT
13 SH SHAFT
14 DS DISTAL ARTICULATION OR END
15 DSH DISTAL ARTICULATION PLUS SHAFT
16 ANT ANTERIOR
17 PLS POSTERIOR
18 HFL ENTIRE BONE SPLIT LONGITUDINALLY IN HALF
19 MID MIDDLE OR CENTRAL PORTION
20 AMI ANTERIOR PLUS MIDDLE PORTION
21 PMI POSTERIOR PLUS MIDDLE PORTION
22 VP VENTRAL PORTION
23 DP DORSAL PORTION
24 EI END INDETERMINATE
25 COT CROWN OF TOOTH

FIELD 3	SEGMENT
01	LT LATERAL SEGMENT OF PORTION
02	MD MEDIAL SECTION OF PORTION
03	AN ANTERIOR SEGMENT OF PORTION
04	PO POSTERIOR SEGMENT OF PORTION
05	AL ANTEROLATERAL SEGMENT OF PORTION
06	PL POSTEROLATERAL SEGMENT OF PORTION
07	AM ANTEROMEDIAL SEGMENT OF PORTION
08	PO POSTEROMEDIAL SEGMENT OF PORTION
09	HF HALF SEGMENT LATERAL MEDIAL ANTERIOR POSTERIOR INDET
10	FR UNSPECIFIED FRAGMENT OF PORTION
11	.CS COMPLETE SHAFT TUBULAR
12	DT DISTAL SEGMENT
13	PX PROXIMAL SEGMENT

Appendix D

FAUNAL ELEMENT IDENTIFICATIONS

OBS	SITE	NUM	EUN	LEVEL	STRT	SPROV	WPROV	CATS	TAXON	AN	PE	SE	QUANT	WEIGHT	SF	FR	BU	JUV	BB	FOR	BON	
		INT	INT		ABD	V	V	T	N				T	T	DSP	U	ORR	CR	UL	HRE	NUM	
															ET	NT	K	H	E	X		
99	DLLG21	061	188	20	1			4378	10	100000000	90000	10	10	1	0.40	.	.	.	.	.	.	8880
100	DLLG21	061	189	21	2			4491	10	100000000	90000	10	10	4	2.00	.	.	.	.	.	.	900
101	DLLG21	061	189	21	2			4491	10	100000000	90000	10	10	1	0.80	.	.	.	.	.	.	910
102	DLLG21	061	189	31	16			2685	10	100000000	90000	10	10	1	0.40	.	.	.	.	.	.	1160
103	DLLG21	061	190	27	2			4980	10	100000000	90000	10	10	1	4.40	.	.	.	.	.	.	430
104	DLLG21	061	190	22	.			3601	10	100000000	90000	10	10	2	1.70	.	.	.	.	.	.	890
105	DLLG21	061	191	19	1			4782	10	100000000	90000	10	10	9	9.80	.	.	.	.	.	.	240
106	DLLG21	061	192	17	1			4151	10	100000000	90000	10	10	21	26.00	.	.	.	.	.	.	20
107	DLLG21	061	192	17	1			4151	10	100000000	90000	10	10	2	2.00	.	.	.	.	.	.	80
108	DLLG21	061	192	21	2			5017	10	100000000	90000	10	10	12	13.00	.	.	.	.	.	.	130
109	DLLG21	061	192	21	2			5017	10	100000000	90000	10	10	1	1.00	.	.	.	.	.	.	140
110	DLLG21	061	192	16	1			4348	10	100000000	90000	10	10	12	20.50	.	.	.	.	.	.	190
111	DLLG21	061	192	19	1			4782	10	100000000	21003	18	.	1	1.00	.	.	.	.	.	.	210
112	DLLG21	061	192	19	1			4782	10	100000000	90000	10	10	19	16.10	.	.	.	.	.	.	270
113	DLLG21	061	192	18	1			4371	10	100000000	90000	10	10	20	24.00	.	.	.	.	.	.	310
114	DLLG21	061	192	18	1			4371	10	100000000	90000	10	10	7	9.50	.	.	.	.	.	.	320
115	DLLG21	061	192	20	1			4790	10	100000000	90000	10	10	1	3.30	.	.	.	.	.	.	450
116	DLLG21	061	192	20	1			4790	10	100000000	90000	10	10	.	.	.	.	.	.	.	520	
117	DLLG21	061	192	20	1			4792	10	130000000	90000	10	10	2	0.20	.	.	.	.	.	.	8590
118	DLLG21	061	192	17	1			4151	10	100000000	90000	10	10	5	2.00	.	.	.	.	.	.	8630
119	DLLG21	061	192	21	2			5017	10	100000000	90000	10	10	2	1.00	.	.	.	.	.	.	8640
120	DLLG21	078	194	26	16			4760	10	100000000	13000	10	10	1	0.20	.	.	.	.	.	.	790
121	DLLG21	078	194	27	16			5074	10	100000000	90000	10	10	3	3.20	.	.	.	.	.	.	830
122	DLLG21	078	196	30	3			3744	10	100000000	90000	10	10	1	0.80	.	.	.	.	.	.	1000
123	DLLG21	078	196	15	.			4031	10	100000000	90000	10	10	1	0.20	.	.	.	.	.	.	1040
124	DLLG21	078	196	16	.			4103	10	100000000	90000	10	10	1	1.00	.	.	.	.	.	.	1050
125	DLLG21	078	196	16	.			4103	10	100000000	90000	10	10	4	1.90	.	.	.	.	.	.	1080
126	DLLG21	078	196	16	.			4103	10	100000000	90000	0	0	1	0.20	.	.	.	.	.	.	8930
127	DLLG21	085	192	27	.			6629	10	100000000	90000	10	10	4	1.00	.	.	.	.	.	.	4530
128	DLLG21	086	194	14	.			4252	10	100000000	90000	10	10	2	1.00	.	.	.	.	.	.	890
129	DLLG21	086	194	27	16			2483	10	100000000	90000	10	10	1	1.00	.	.	.	.	.	.	900
130	DLLG21	086	194	14	.		085.14	192.06	4254	10	100000000	90000	10	10	1	0.10	.	.	.	.	.	910
131	DLLG21	086	194	14	.		085.15	192.06	4253	10	100000000	90000	10	10	1	1.00	.	.	.	.	.	920
132	DLLG21	086	194	14	.			4404	10	100000000	90000	10	10	8	3.80	.	.	.	.	.	.	930
133	DLLG21	090	177	42	.			6461	10	100000000	90000	10	10	2	0.30	.	.	.	.	.	.	5010
134	DLLG21	090	177	33	15			7059	10	100000000	90000	10	10	1	0.80	.	.	.	.	.	.	1700
135	DLLG21	090	177	36	.			3786	10	100000000	90000	10	10	1	1.10	0	.	.	.	.	.	1710
136	DLLG21	090	177	28	.			3982	10	100000000	90000	10	10	1	1.10	.	.	.	.	.	.	1730
137	DLLG21	090	177	32	.			3983	10	100000000	90000	10	10	1	0.90	.	.	.	.	.	.	1740
138	DLLG21	090	177	31	.			3980	10	100000000	90000	10	10	2	2.80	.	.	.	.	.	.	1770
139	DLLG21	090	177	42	.		089.85	176.30	7040	10	100000000	80004	10	10	4	0.05	.	.	.	.	.	9540
140	DLLG21	091	177	42	.			3788	10	100000000	90000	10	10	1	1.20	.	.	.	.	.	.	1810
141	DLLG21	091	177	42	.			3788	10	100000000	90000	10	10	1	1.80	.	.	.	.	.	.	1850
142	DLLG21	091	177	43	.		090.20	176.48	6471	10	100000000	90000	10	10	4	0.60	.	.	.	.	.	6410
143	DLLG21	091	177	28	3			2717	10	100000000	90000	10	10	1	1.10	.	.	.	.	.	.	2140
144	DLLG21	091	177	35	.			5843	10	100000000	90000	10	10	6	9.10	.	.	.	.	.	.	2310
145	DLLG21	091	177	44	.		090.85	176.30	7036	10	100000000	90000	10	10	1	0.10	.	.	.	.	.	9630
146	DLLG21	092	177	31	.			1698	10	100000000	90000	10	10	1	0.50	.	.	.	.	.	.	2170
147	DLLG21	092	177	46	12		091.08	176.56	2935	10	100000000	90000	13	10	1	2.20	.	.	.	.	.	710

Y82 SP FAUNA BY TAXON

20:49 WEDNESDAY, AUGUST 31, 1988 5

OBS	SITE	NUMINT	ENVTEL	STARD	SPROV	WPROV	CALS	TAXON	ANL	PORT	QUANT	WEIGHT	ISF	FRU	BURR	FOETAK	BONENUM
197	DLLG21	096	174 32	. 231.32	095.56	173.53	7118 10	100000000	90000	10 10 1	1.50	.	.	.	.	0 0	8840
198	DLLG21	096	174 26	. 231.63			3752 10	100000000	90000	10 10 7	16.20	.	.	.	.	0 1	2900
199	DLLG21	096	174 26	. 231.63			3752 10	100000000	90000	10 10 1	0.10	.	.	.	.	0 1	2920
200	DLLG21	096	174 35	. 231.20	094.50	173.60	7006 10	100000000	90000	10 10 1	0.10	.	.	.	.	0 1	9780
201	DLLG21	096	174 35	. 231.20	094.10	173.63	7006 10	100000000	90000	10 10 1	0.07	.	.	.	.	0 1	9980
202	DLLG21	096	174 35	. 231.20	094.10	173.63	7006 10	100000000	90000	10 10 2	0.10	.	.	.	.	0 2	30
203	DLLG21	096	174 35	. 231.20	094.10	173.30	7006 10	100000000	90000	10 10 8	0.20	.	.	.	.	0 2	100
204	DLLG21	061	192 18	1 232.03			4371 10	101000000	21500	1 0 1	0.90	.	.	.	.	0 0	330
205	DLLG21	093	182 25	2 231.68			1416 10	101000000	90000	10 10 1	1.00	.	.	.	.	0 1	670
206	DLLG21	093	182 34	. 231.23			1428 10	101000000	90000	10 10 1	1.00	.	.	.	.	0 1	680
207	DLLG21	061	192 31	16 231.30	060.20	191.64	2294 10	101010500	13050	1 . 2	50.10	.	.	.	.	0 1	480
208	DLLG21	061	192 33	16 231.27	060.10	191.52	2689 10	101010500	51000	1 . 1	21.00	.	.	.	.	0 1	490
209	DLLG21	091	177 42	. 230.80	090.10	176.70	5476 10	103010101	13153	1 0 1	1.40	1 1	.	.	.	0 0	2180
210	DLLG21	094	175 37	18 231.07	093.57	174.09	6194 10	103010101	13253	1 0 1	2.00	1 1	.	.	.	0 0	3750
211	DLLG21	092	177 48	15 230.53	091.88	176.52	3549 10	104010000	22000	12 . 1	0.10	.	.	.	.	0 1	5710
212	DLLG21	092	177 48	12 230.50	091.12	176.56	3533 10	104010000	50100	1 . 4	0.20	.	.	.	.	0 1	5790
213	DLLG21	092	177 48	12 230.50	091.12	176.56	3533 10	104010000	41502	1 . 1	0.10	.	.	.	.	0 1	5800
214	DLLG21	092	177 48	12 230.50	091.12	176.56	3533 10	104010000	41503	1 . 2	0.20	.	.	.	.	0 1	5810
215	DLLG21	092	177 49	12 .			7116 10	104010000	41200	15 0 1	0.60	1 .	.	.	.	0 1	9310
216	DLLG21	092	177 49	12 .			7116 10	104010000	50100	1 0 1	0.10	.	.	.	.	0 1	9320
217	DLLG21	093	177 34	. .			6958 10	104010000	50100	1 0 1	0.20	.	.	.	.	0 0	7470
218	DLLG21	096	174 31	. 231.40			7070 10	104010000	41505	1 0 1	0.10	2 .	.	.	.	0 0	8190
219	DLLG21	092	177 48	15 230.53	091.88	176.52	3549 10	104010101	42202	12 . 1	2.30	2 3 .	1 .	.	.	0 1	5700
220	DLLG21	093	177 12	. .			6775 10	104010101	31010	1 . 1	0.90	2 .	.	.	.	0 1	5840
221	DLLG21	093	177 12	. .			6775 10	104010101	31010	11 13 1	0.50	1 .	.	.	.	0 1	5850
222	DLLG21	091	177 45	. 230.70	090.85	176.30	7159 10	104010200	40500	1 0 3	0.70	.	.	.	.	0 2	150
223	DLLG21	091	177 45	. 230.70	090.85	176.30	7159 10	104010200	52001	1 0 1	0.30	.	.	.	.	0 2	160
224	DLLG21	091	177 45	. 230.70	090.85	176.30	7159 10	104010200	50000	1 0 3	0.20	.	.	.	.	0 2	170
225	DLLG21	093	177 16	. 230.78	092.60	176.70	2207 10	104010200	52002	1 . 1	0.80	1 .	.	.	.	0 1	3690
226	DLLG21	091	177 42	. 230.83			3788 10	104010201	42100	1 0 1	3.40	2 1 .	.	.	.	0 0	7690
227	DLLG21	091	177 42	. 230.83			3788 10	104010201	42200	12 0 1	1.30	2 1 .	.	.	.	0 0	7700
228	DLLG21	091	177 43	. 230.77			7117 10	104010201	42200	15 0 1	1.00	1 .	.	.	.	0 0	8070
229	DLLG21	091	177 37	. 231.10			5845 10	104010201	41300	12 . 1	0.60	1 .	.	.	.	0 1	6460
230	DLLG21	092	177 47	12 230.57	091.82	176.53	2970 10	104010201	41100	1 0 1	2.00	2 .	.	.	.	0 0	7330
231	DLLG21	092	177 47	12 230.57	091.82	176.53	2970 10	104010201	41200	15 0 1	0.60	2 .	.	.	1 .	0 0	7340
232	DLLG21	092	177 47	12 230.57	091.82	176.53	2970 10	104010201	50000	1 0 1	0.10	.	.	.	.	0 0	7350
233	DLLG21	092	177 49	. 230.47			7116 10	104010201	42200	12 0 1	2.10	1 3 .	.	.	.	0 0	7380
234	DLLG21	092	177 49	. 230.47			7116 10	104010201	42100	1 0 1	3.10	2 .	.	.	.	0 0	7390
235	DLLG21	092	177 49	. 230.47			7116 10	104010201	41100	1 . 1	1.70	1 .	.	.	.	0 0	7400
236	DLLG21	092	177 49	. 230.47			7116 10	104010201	32077	1 . 1	2.00	1 .	.	.	1 .	0 0	7410
237	DLLG21	092	177 47	. 230.55	091.05	176.21	2977 10	104010201	42202	1 0 1	2.90	2 4 .	.	.	.	0 0	7520
238	DLLG21	092	177 50	12 230.40	091.01	176.46	6481 10	104010201	12001	21 0 1	2.50	2 .	.	.	.	0 0	7750
239	DLLG21	092	177 45	6 230.68	091.95	176.78	2753 10	104010201	42100	12 0 1	2.20	1 1 .	.	.	.	0 0	7820
240	DLLG21	092	177 44	. 230.70	091.95	176.89	2575 10	104010201	42100	15 0 1	1.40	1 .	.	.	.	0 1	390
241	DLLG21	092	177 49	12 .			7116 10	104010201	12000	1 . 1	2.00	2 .	.	.	.	0 1	4700
242	DLLG21	092	177 49	12 .			7116 10	104010201	13211	1 . 1	0.10	2 .	.	.	.	0 1	4710
243	DLLG21	092	177 49	12 .			7116 10	104010201	13233	1 . 1	0.10	2 .	.	.	.	0 1	4720
244	DLLG21	092	177 49	12 .			7116 10	104010201	13251	1 . 1	0.10	2 .	.	.	.	0 1	4730
245	DLLG21	092	177 49	12 .			7116 10	104010201	13252	1 . 1	0.10	2 .	.	.	.	0 1	4740

OBS	SITE	UNIT	EUNIVL	STRTABD	SPROV	WPROV	CAT	CLS	TAXON	ANL	PORT	SE	QUANT	WEIGHT	SFUSDET	FRUPRN	JUBCRACK	BBULTR	FOHREX	BONNUM	
295	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13133	1	0	1	0.20	1	1		0	0	2570
296	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13132	1	0	1	0.10	1	1		0	0	2580
297	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13131	1	0	1	0.10	1	1		0	0	2590
298	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13133	1	0	1	0.20	2	1		0	0	2600
299	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13132	1	0	1	0.10	2	1		0	0	2610
300	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13010	1	0	8	0.70	1	1		0	0	2620
301	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13253	1	0	1	0.05	2	1		0	0	2630
302	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13234	1	0	1	0.20	1	1		0	0	2640
303	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13234	1	0	1	0.20	2	1		0	0	2650
304	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13233	1	0	1	0.10	1	1		0	0	2660
305	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13233	1	0	1	0.10	2	1		0	0	2670
306	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13232	1	0	1	0.10	1	1		0	0	2680
307	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13232	1	0	1	0.10	2	1		0	0	2690
308	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	11002	1	0	1	0.40	2			0	0	2700
309	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	13131	1	0	1	0.10	2	1		0	0	2710
310	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	21101	1	0	1	2.10				0	0	2730
311	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	21102	1	0	1	2.40	2			0	0	2740
312	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	21107	1	0	1	1.20	1			0	0	2750
313	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	21106	1	0	1	1.80	2			0	0	2760
314	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	21100	1	0	1	1.80	4			0	0	2770
315	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	21100	1	0	1	1.90	4			0	0	2780
316	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	11016	1	0	1	0.90	1			0	0	2790
317	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	11002	16	0	1	0.20	1			0	0	2800
318	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	11023	1	0	2	1.00	1			0	0	2810
319	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	11012	1	0	1	1.40	2			0	0	2820
320	DLG21	093	177	16	.230.72	092.62	175.60	1970	10	106010201	11065	17	0	1	1.30				0	0	2830
321	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11008	1	0	1	0.40	1			0	0	2840
322	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11008	1	0	1	0.40	2			0	0	2850
323	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11006	1	0	1	0.10	1			0	0	2860
324	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11006	1	0	1	0.10	2			0	0	2870
325	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11066	1	0	1	0.80				0	0	2880
326	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11012	17	8	2	1.30	1			0	0	2890
327	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11020	17	8	1	0.90	1			0	0	2900
328	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11067	1	0	1	3.20	1			0	0	2910
329	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11024	1	0	1	1.00	2			0	0	2920
330	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11009	19	0	1	0.20				0	0	2930
331	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11026	19	10	1	0.10				0	0	2940
332	DLG21	093	177		.230.72	092.62	175.60	1970	10	106010201	11001	10	10	10	1.60				0	0	2950
333	DLG21	194	190	29	.231.48	193.86	189.16	2259	10	106020101	13152	1		1	3.20	1			0	1	4060
334	DLG21	094	189	22	.231.84	193.84	188.15	4552	10	106050201	41100	1	0	1	3.60	2	4		0	0	7590
335	DLG21	194	190	19	.231.95	193.58	189.00	2110	10	106050201	11005	17	0	1	0.50				0	0	7600
336	DLG21	194	190	19	.231.95	193.58	189.00	2110	10	106050201	11000	10	10	4	1.10				0	0	7610
337	DLG21	194	190	19	.231.95	193.58	189.00	2110	10	106050201	11026	10	0	2	1.10				0	0	7620
338	DLG21	194	190	19	.231.95	193.58	189.00	2110	10	106050201	11016	1	0	1	0.20	2			0	0	7630
339	DLG21	194	190	19	.231.95	193.58	189.00	2110	10	106050201	12001	1	0	1	1.80	1			0	0	7640
340	DLG21	194	190	19	.231.95	193.58	189.00	2110	10	106050201	12001	19	0	1	1.30	2			0	0	7650
341	DLG21	194	190	19	.231.95	193.58	189.00	2110	10	106050201		1	0	2	0.10				0	0	7660
342	DLG21	194	190	19	.231.95	193.58	189.00	2110	10	106050201	40500	1	0	1	0.10				0	0	7670
343	DLG21	194	190	19	.231.95	193.58	189.00	2110	10	106050201	11000	10	10	1	0.10				0	0	7680

OBS	SITE	UN	EUN	LEVT	STABD	SPROV	WPROV	CAT	CLS	TAXON	ANL	PORT	QUANT	WEIS	FRU	BU	BB	FO	BON		
														GHDS	UET	UR	CR	UL		TA	TH	NUM
687	DLLG21	091	176	41						3787	10	109000000	21507	10	10	1			0	0	490
688	DLLG21	091	176	41						3787	10	109000000	90000	10	10	1			0	0	500
689	DLLG21	091	176	39						3805	10	109000000	22000	19	0	1			0	0	1650
690	DLLG21	091	176	39						3805	10	109000000	11000	10	10	1			0	0	150
691	DLLG21	091	176	33		090.80	175.85			5839	10	109000000	22000	13	10	4			0	1	2180
692	DLLG21	091	176	42		090.20	175.80			3736	10	109000000	40000	13	10	1			0	1	2190
693	DLLG21	091	176	41						3787	10	109000000	90000	10	10	1			0	1	5990
694	DLLG21	091	177	36		090.75	176.60			3490	10	109000000	21000	10	10	1			0	0	1620
695	DLLG21	091	177	42						3788	10	109000000	22000	11	0	1			0	0	1700
696	DLLG21	091	177	42						3788	10	109000000	22000	19	0	1			0	0	1740
697	DLLG21	091	177	42						3788	10	109000000	22000	19	0	1			0	0	1750
698	DLLG21	091	177	42						3788	10	109000000	22000	19	0	1			0	0	1760
699	DLLG21	091	177	42						3788	10	109000000	22000	14	0	1			0	0	1770
700	DLLG21	091	177	42						3788	10	109000000	22000	19	0	1			0	0	1780
701	DLLG21	091	177	42						3788	10	109000000	22000	14	0	1			0	0	1790
702	DLLG21	091	177	42						3788	10	109000000	21312	1	0	1			0	0	1800
703	DILG21	091	177	42						6010	10	109000000	22000	19	0	1			0	0	4040
704	DLLG21	091	177	44						6459	10	109000000	22000	19	0	1			0	0	4920
705	DLLG21	091	177	44						6459	10	109000000	40000	10	10	1			0	0	4930
706	DLLG21	091	177	44						6459	10	109000000	21002	10	0	1			0	0	4940
707	DLLG21	091	177	43						7117	10	109000000	22000	19	0	1			0	0	5500
708	DLLG21	091	177	43						7117	10	109000000	21002	20	10	2			0	0	5520
709	DLLG21	091	177	43						7117	10	109000000	21002	19	0	4			0	0	5540
710	DLLG21	091	177	43						7117	10	109000000	40000	10	10	1			0	0	5550
711	DLLG21	091	177	43						7117	10	109000000	22000	11	1	1			0	0	5680
712	DLLG21	091	177	43						7117	10	109000000	21505	1	0	1			0	0	5690
713	DLLG21	091	177	43						7117	10	109000000	90000	10	10	1			0	0	5700
714	DLLG21	091	177	43						7117	10	109000000	21002	10	10	1			0	0	5710
715	DLLG21	091	177	43		090.30	176.65			6458	10	109000000	21223	15	0	1			0	0	6020
716	DLLG21	091	177	43		090.20	176.48			6471	10	109000000	22000	19	0	1			0	0	6400
717	DLLG21	091	177	42						3788	10	109000000	40500	10	10	1			0	0	8560
718	DLLG21	091	177	41	18	230.86	090.70	176.70		3793	10	109000000	22000	12	2	1			0	0	8680
719	DLLG21	091	177	33	4	231.28				5838	10	109000000	11000	10	10	1			0	1	140
720	DLLG21	091	177	37		231.07	090.15	176.84		3790	10	109000000	22000	10	10	2			0	1	2150
721	DLLG21	091	177	37		231.06	090.45	176.60		3731	10	109000000	40000	10	10	1			0	1	2160
722	DLLG21	091	177	35		231.16	090.35	176.84		3472	10	109000000	40000	10	10	1			0	1	2230
723	DLLG21	091	177	34		231.22	090.45	176.15		5837	10	109000000	40000	13	11	1			0	1	2250
724	DLLG21	091	177	34		231.23				3468	10	109000000	22000	10	10	1			0	1	2260
725	DLLG21	091	177	34		231.23				3468	10	109000000	22000	10	10	1			0	1	2290
726	DLLG21	091	177	36		231.11				3492	10	109000000	22000	10	10	2			0	1	2330
727	DLLG21	091	177	36		231.11				3492	10	109000000	22000	10	10	1			0	1	2340
728	DLLG21	091	177	42		230.83				3788	10	109000000	22300	10	10	1			0	1	2600
729	DLLG21	092	177	47	12	230.58	091.08	175.23		2980	10	109000000	40000	10	10	1			0	0	1500
730	DLLG21	092	177	29	3	231.48	091.32	176.87		1651	10	109000000	42100	11	10	1			0	0	2050
731	DLLG21	092	177	43	12	230.76	091.05	175.61		3829	10	109000000	22000	19	0	1			0	0	2080
732	DLLG21	092	177	38	5	231.03	091.10	175.58		3836	10	109000000	22000	19	0	1			0	0	2090
733	DLLG21	092	177	49	12	230.45	091.90	175.84		3739	10	109000000	40000	19	10	3			0	0	2120
734	DLLG21	092	177	39	5	230.99	091.90	176.59		1877	10	109000000	90000	10	10	1			0	0	2130
735	DLLG21	092	177	34						1814	10	109000000	90000	10	10	1			0	0	2140

OBS	SITE	NUMINT	EUNVEL	STRTABTD	SPROV	WPROV	CAT	CLS	TAXON	ANL	PORT	QANT	WEIGHT	ISF	FRU	BUCR	BBUL	FOAHER	BONENUM		
981	DILG21	090	177	20			6897	10	110000000	90000	10	10	1	1.5					0	0	4030
982	DLLG21	090	177	42			6461	10	110000000	90000	10	10	1	1.0					0	0	5000
983	DLLG21	090	177	14			6485	10	110000000	32020	17	1	1	12.5					0	0	6940
984	DLLG21	091	177	42			3788	10	110000000	40000	10	10	1	4.7					0	0	1720
985	DLLG21	091	177	42			3788	10	110000000	22000	10	10	1	4.0					0	0	1730
986	DLLG21	091	177	42			3788	10	110000000	90000	10	10	1	4.7					0	0	1910
987	DLLG21	091	177	39		090.15	6482	10	110000000	90000	10	10	1	1.4					0	0	6830
988	DLLG21	091	177	36		090.20	6495	10	110000000	90000	10	10	1	12.6					0	0	6950
989	DLLG21	091	177	39		090.20	3729	10	110000000	40000	10	10	1	4.0					0	1	2240
990	DLLG21	091	177	38			6627	10	110000000	40000	10	10	1	1.8					0	1	4480
991	DLLG21	092	177	37		091.06	2561	10	110000000	21100	10	10	1	4.2					0	1	1630
992	DLLG21	092	177	33			1797	10	110000000	90000	10	10	2	5.0					0	0	2010
993	DLLG21	092	177	33			1797	10	110000000	40000	24	10	1	2.9					0	0	2030
994	DLLG21	092	177	40		091.52	1887	10	110000000	42200	11	0	1	10.8					0	0	2070
995	DLLG21	092	177	34		091.90	1815	10	110000000	22000	19	0	1	12.0					0	0	2100
996	DLLG21	092	177	34			1814	10	110000000	90000	10	10	1	1.5					0	0	2150
997	DLLG21	092	177	35			1833	10	110000000	90000	10	10	2	1.9					0	0	2210
998	DLLG21	092	177	35		091.21	1835	10	110000000	80000	19	0	1	5.1					0	0	2270
999	DLLG21	092	177	23			1568	10	110000000	40000	13	2	1	29.6					0	0	3090
1000	DLLG21	092	177	48		091.18	3550	10	110000000	90000	10	10	3	2.0					0	0	3110
1001	DLLG21	092	177	45		091.54	2762	10	110000000	21100	19	2	1	8.0					0	0	3220
1002	DLLG21	092	177	44		091.95	2575	10	110000000	21300	23	1	1	6.6					0	0	3260
1003	DLLG21	092	177	46		091.89	2932	10	110000000	22000	19	0	1	35.0					0	0	3280
1004	DLLG21	092	177	48		091.09	3445	10	110000000	22000	13	0	1	34.5					0	0	3310
1005	DILG21	092	177	12			6755	10	110000000	90000	10	10	1	4.1					0	0	3890
1006	DILG21	092	177	12			6755	10	110000000	21311	18	0	1	3.0					0	0	3920
1007	DLLG21	092	177	17			1552	10	110000000	40000	10	10	1	1.4					0	0	8980
1008	DLLG21	092	177	48		091.88	3549	10	110000000	21500	20	0	1	4.0					0	0	9220
1009	DLLG21	092	177	36		091.75	1854	10	110000000	21300	18	0	1	9.5					0	0	9430
1010	DLLG21	092	177	48		091.88	3549	10	110000000	21502	1	0	1	0.7					0	1	350
1011	DLLG21	092	177	48		091.27	3439	10	110000000	80000	10	10	1	2.3					0	1	3950
1012	DLLG21	092	177	48		091.16	3539	10	110000000	90000	19	10	1	7.0					0	1	4010
1013	DLLG21	092	177	47		091.91	2974	10	110000000	22000	15	10	1	3.1					0	1	4080
1014	DLLG21	092	177	49			7116	10	110000000	90000	10	10	1	1.2					0	1	4850
1015	DLLG21	092	177	49			7116	10	110000000	90000	10	10	1	1.0					0	1	4860
1016	DLLG21	092	177	49			7116	10	110000000	90000	10	10	6	7.8					0	1	4870
1017	DLLG21	092	177	33		231.28	1797	10	110000000	40000	10	10	2	5.0					0	1	6800
1018	DLLG21	092	177	48		230.54	3541	10	110000000	42300	12	13	1	4.2					0	1	7490
1019	DLLG21	093	174	37		231.07	3693	10	110000000	22000	14	0	1	19.0					0	0	3020
1020	DLLG21	093	174	23		231.77	3277	10	110000000	90000	10	10	1	4.1					0	0	3060
1021	DLLG21	093	174	36		231.14	3692	10	110000000	22000	10	10	1	5.4					0	0	3070
1022	DLLG21	093	174	34			6598	10	110000000	40000	10	10	1	1.2					0	0	3070
1023	DLLG21	093	174	39			6662	10	110000000	40000	10	10	2	1.8					0	1	4460
1024	DLLG21	093	174	41			6578	10	110000000	90000	10	10	2	4.8					0	1	4500
1025	DLLG21	093	177				2930	10	110000000	22000	10	10	3	8.1					0	0	1400
1026	DLLG21	093	177	12			1331	10	110000000	21003	10	10	3	3.2					0	0	1450
1027	DLLG21	093	177	12			1331	10	110000000	22000	10	10	1	4.2					0	0	1460
1028	DLLG21	093	177	12			1331	10	110000000	21000	10	10	1	4.3					0	0	1470
1029	DLLG21	093	177	17			2198	10	110000000	90000	10	10	1	2.1					0	0	2980

OBS	SITE	NUN	EUN	LENT	STDB	SPROV	WPROV	CAL	TAXON	AP	QUANT	WEIGHT	SFEET	FRUITS	BUCK	FOLK	FOUL	OTHER	BONE				
																				VAL	VAL	VAL	VAL
1030	DLLG21	093	177	17	.	.	.	.	2198	10	110000000	22000	15	0	1	12.1	.	.	.	1	0	0	3000
1031	DLLG21	093	177	17	.	.	.	.	2198	10	110000000	21505	23	3	1	1.8	.	.	.	.	0	0	3010
1032	DLLG21	093	177	18	.	230.53	.	.	7066	10	110000000	22000	19	10	1	6.0	.	.	.	1	0	0	3480
1033	DLLG21	093	177	.	.	.	.	.	7060	10	110000000	90000	10	10	3	8.0	.	.	.	.	0	0	3590
1034	DLLG21	093	177	.	.	.	.	.	7060	10	110000000	22000	10	10	1	7.3	.	.	.	1	0	0	3740
1035	DLLG21	093	177	.	12	.	.	.	6775	10	110000000	90000	10	10	1	3.8	.	.	2	.	0	0	4080
1036	DLLG21	093	177	.	12	.	.	.	6775	10	110000000	80000	10	10	1	2.9	.	.	.	.	0	0	4090
1037	DILG21	093	177	.	12	.	.	.	6699	10	110000000	90000	10	10	2	3.0	.	.	.	.	0	0	4200
1038	DILG21	093	177	.	12	.	.	.	6699	10	110000000	31011	1	0	1	4.9	.	.	.	3	0	0	4220
1039	DLLG21	093	177	.	12	.	.	.	6699	10	110000000	22000	12	0	1	11.0	2	3	.	.	0	0	4510
1040	DLLG21	093	177	23	.	230.03	.	.	6455	10	110000000	90000	10	10	1	2.1	.	.	.	.	0	0	5570
1041	DLLG21	093	177	22	12	230.11	092.79	175.99	6429	10	110000000	22000	19	0	1	16.0	.	3	.	.	0	0	5970
1042	DLLG21	093	177	22	12	230.11	092.79	175.99	6472	10	110000000	90000	10	10	1	16.6	.	.	.	.	0	0	6460
1043	DLLG21	093	177	22	12	230.11	092.79	175.99	6472	10	110000000	22000	10	10	1	25.5	.	.	.	.	0	0	6480
1044	DLLG21	093	177	18	.	230.53	.	.	7164	10	110000000	21003	14	0	2	3.9	.	.	.	.	0	0	7150
1045	DLLG21	093	177	18	.	230.53	.	.	7164	10	110000000	40000	10	10	4	11.0	.	.	.	.	0	0	7160
1046	DLLG21	093	177	18	.	230.53	.	.	7164	10	110000000	22000	10	10	1	3.3	.	.	.	.	0	0	7180
1047	DLLG21	093	177	18	.	230.53	.	.	7164	10	110000000	40000	10	10	2	13.8	.	.	.	.	0	0	7210
1048	DLLG21	093	177	18	.	230.53	.	.	7164	10	110000000	90000	10	10	4	8.5	.	.	2	.	0	0	7220
1049	DLLG21	093	177	15	6	230.86	092.45	176.78	3766	10	110000000	21315	1	0	1	9.9	.	.	.	3	0	0	8940
1050	DLLG21	093	177	22	12	230.11	092.79	175.99	6454	10	110000000	22000	15	0	3	10.0	.	.	.	1	0	0	9130
1051	DLLG21	093	177	13	.	.	.	.	1399	10	110000000	21300	17	1	1	15.5	.	.	.	0	0	0	9230
1052	DLLG21	093	177	17	.	230.63	.	.	6639	10	110000000	90000	10	10	2	3.6	.	.	.	.	0	1	290
1053	DLLG21	093	177	16	.	230.73	.	.	2904	10	110000000	90000	10	10	1	1.8	.	.	.	2	0	1	1610
1054	DLLG21	093	177	.	.	.	.	.	1978	10	110000000	40000	10	10	3	16.8	.	2	.	.	0	1	3040
1055	DLLG21	093	177	.	.	.	.	.	1978	10	110000000	22000	14	10	1	14.9	.	.	.	.	0	1	3070
1056	DLLG21	093	177	19	.	.	.	.	2202	10	110000000	22000	14	10	1	7.9	.	3	.	1	0	1	3140
1057	DLLG21	093	177	19	.	.	.	.	2203	10	110000000	80000	10	10	1	2.1	.	.	.	.	0	1	3280
1058	DLLG21	093	177	20	.	.	.	.	7064	10	110000000	23000	18	9	1	4.1	.	3	.	.	0	1	8070
1059	DLLG21	094	174	40	18	230.92	093.97	173.26	3703	10	110000000	21505	1	0	1	8.4	.	.	.	.	0	0	8960
1060	DLLG21	094	174	33	4	231.26	093.09	173.11	2597	10	110000000	22200	13	11	1	1.0	.	.	.	.	0	1	1130
1061	DLLG21	094	174	40	18	230.92	093.97	173.26	3703	10	110000000	22000	10	10	2	8.5	.	.	.	.	0	1	2470
1062	DLLG21	094	174	40	18	230.92	093.97	173.26	3703	10	110000000	90000	10	10	1	11.2	.	.	.	.	0	1	2480
1063	DLLG21	094	175	39	.	.	.	.	6196	10	110000000	90000	10	10	1	2.2	.	.	.	.	0	0	3120
1064	DLLG21	094	175	31	.	.	.	.	6211	10	110000000	90000	10	10	1	1.2	.	.	.	2	0	0	3130
1065	DLLG21	094	175	35	18	231.15	093.53	174.07	6467	10	110000000	90000	10	10	1	4.0	.	.	.	.	0	0	6560
1066	DLLG21	094	175	34	.	.	.	.	6613	10	110000000	12008	17	0	1	3.5	.	.	.	2	0	1	280
1067	DLLG21	094	191	28	.	231.54	093.43	189.24	2230	10	110000000	40000	10	10	1	1.1	.	.	.	.	0	1	1830
1068	DLLG21	094	192	25	16	231.66	093.07	190.09	4978	10	110000000	90000	10	10	1	1.1	.	.	.	.	0	1	1870
1069	DLLG21	096	174	27	.	.	.	.	6604	10	110000000	90000	10	10	5	8.3	.	.	.	.	0	1	4590
1070	DLLG21	096	174	27	.	.	.	.	6604	10	110000000	40000	10	10	1	14.2	.	.	.	.	0	1	4600
1071	DLLG21	096	174	36	.	231.15	094.15	173.65	7023	10	110000000	90000	10	10	1	1.7	.	.	.	.	0	1	9350
1072	DLLG21	061	188	17	1	232.07	.	.	4171	10	111000000	22000	13	10	1	1.7	.	.	.	3	0	0	520
1073	DLLG21	061	188	18	1	232.03	.	.	4202	10	111000000	22000	13	10	1	2.2	.	.	.	3	0	0	530
1074	DLLG21	061	188	19	1	231.97	.	.	4398	10	111000000	22000	13	10	1	1.0	.	.	.	2	0	0	550
1075	DLLG21	061	188	17	1	232.07	.	.	4176	10	111000000	21003	19	.	1	0.3	.	.	.	.	0	0	760
1076	DLLG21	061	188	17	1	232.07	.	.	4176	10	111000000	90000	10	10	3	4.0	.	.	.	3	0	0	770
1077	DLLG21	061	188	17	1	232.07	.	.	4176	10	111000000	50000	10	10	1	1.0	.	.	.	.	0	0	780
1078	DLLG21	061	188	17	1	232.07	.	.	4173	10	111000000	50100	14	0	1	0.8	.	.	.	.	0	0	920

OBS	SITE	NUN	UNIT	EUN	LEVT	STRT	DB	SPROV	WPROV	CAT	CLS	TAXON	ANL	PORT	SEGT	QUANT	WEIGHT	SFIDE	FRUET	UBOEN	VCRACK	BBTACK	FOULTR	BONEN	JUN	BOEN
1128	DLLG21	093	173	.	.	.	.			6330	10	111000000	90000	10	10	3	3.10	.	.	.	.	.	.	0	0	7090
1129	DLLG21	093	177	12	.	230.29		092.60	176.35	1328	10	111000000	80000	1	0	1	1.10	.	.	.	.	.	.	0	0	1380
1130	DLLG21	093	177	12	.	.	.	.	.	1288	10	111000000	40000	10	10	2	3.00	.	.	.	.	.	.	0	0	1490
1131	DLLG21	093	177	.	.	.	.	.	.	7060	10	111000000	22000	19	0	1	5.10	.	.	.	.	3	.	0	0	3540
1132	DLLG21	093	177	.	.	.	.	.	.	7060	10	111000000	22000	19	0	1	5.00	.	.	.	.	1	.	0	0	3550
1133	DLLG21	093	177	.	.	.	.	.	.	7060	10	111000000	22000	19	0	1	3.10	.	.	.	.	2	.	0	0	3560
1134	DLLG21	093	177	.	12	.	.	.	.	6775	10	111000000	90000	10	10	1	3.00	.	.	.	.	.	.	0	0	4070
1135	DLLG21	093	177	23	.	230.03	.	.	.	6455	10	111000000	31011	11	0	1	9.90	.	.	.	.	3	.	0	0	5580
1136	DLLG21	093	177	23	.	230.03	.	.	.	6455	10	111000000	22000	15	0	1	4.30	.	.	.	.	2	.	0	0	5600
1137	DLLG21	093	177	23	.	230.03	.	.	.	6455	10	111000000	21315	1	0	1	6.70	.	.	.	.	.	.	0	0	5610
1138	DLLG21	093	177	22	12	230.11		092.79	175.99	6472	10	111000000	22000	15	0	1	6.00	.	.	.	.	.	.	0	0	6470
1139	DLLG21	093	177	13	.	.	.	.	.	1400	10	111000000	90000	10	10	2	3.10	.	.	.	.	.	.	0	0	7040
1140	DLLG21	093	177	18	.	230.53	.	.	.	7164	10	111000000	22000	14	0	1	3.20	.	.	.	.	1	.	0	0	7130
1141	DLLG21	093	177	18	.	230.53	.	.	.	7164	10	111000000	90000	10	10	1	1.40	.	.	.	.	1	.	0	0	7200
1142	DLLG21	093	177	18	.	230.53	.	.	.	7164	10	111000000	80000	10	10	1	0.60	.	.	.	.	.	.	0	0	7250
1143	DLLG21	093	177	18	.	230.53	.	.	.	7164	10	111000000	90000	10	10	1	2.00	.	.	.	2	.	.	0	0	7260
1144	DLLG21	093	177	.	.	.	.	.	.	7063	10	111000000	41200	15	0	1	5.00	.	.	.	1	1	.	0	0	7510
1145	DLLG21	093	177	13	.	.	.	.	.	1412	10	111000000	21002	1	0	1	5.60	.	3	.	.	.	.	0	0	8820
1146	DLLG21	093	177	12	.	231.09		092.52	176.39	1362	10	111000000	21002	1	0	1	4.60	.	3	.	.	.	.	0	0	8910
1147	DLLG21	093	177	16	.	230.76		092.48	175.76	2375	10	111000000	22000	10	10	1	8.90	.	.	.	.	.	.	0	1	3170
1148	DLLG21	093	177	19	.	230.47		092.50	176.72	2209	10	111000000	90000	10	10	1	0.80	.	.	.	.	.	.	0	1	3680
1149	DLLG21	093	177	13	.	230.93	.	.	.	1400	10	111000000	21223	23	3	1	1.50	.	.	1	.	3	.	0	1	7450
1150	DLLG21	093	177	19	.	230.38	.	.	.	2203	10	111000000	50000	1	.	1	0.80	.	3	.	1	.	.	0	1	7610
1151	DLLG21	093	177	19	.	230.38	.	.	.	2203	10	111000000	21200	23	4	1	2.80	.	.	.	.	.	.	0	1	7620
1152	DLLG21	093	177	18	.	230.48	.	.	.	7164	10	111000000	21500	1	0	1	1.10	.	.	2	.	.	.	0	1	8770
1153	DLLG21	093	179	24	.	231.75	.	.	.	1474	10	111000000	90000	10	10	2	0.90	.	.	.	.	.	.	0	1	1910
1154	DLLG21	094	174	38	.	231.07		093.56	173.02	6435	10	111000000	90000	10	10	1	1.80	.	.	.	.	.	.	0	0	7020
1155	DLLG21	094	174	34	18	231.36		093.09	173.11	2597	10	111000000	22000	13	0	1	0.90	.	.	.	.	.	.	0	1	9290
1156	DILG21	095	173	24	3	231.75	.	.	.	6715	10	111000000	90000	10	10	1	1.00	.	.	.	.	.	.	0	0	4010
1157	DLLG21	096	174	31	.	231.40	.	.	.	7070	10	111000000	40000	10	10	1	1.50	.	.	.	.	1	.	0	0	8170
1158	DLLG21	096	174	31	.	231.40	.	.	.	7070	10	111000000	90000	10	10	1	3.50	.	.	.	.	.	.	0	0	8180
1159	DLLG21	096	174	24	.	231.70	.	.	.	3751	10	111000000	90000	13	10	1	2.80	.	.	.	.	.	.	0	1	2930
1160	DLLG21	061	192	18	1	232.03	.	.	.	4371	10	112000000	21003	19	0	1	0.90	.	3	.	.	3	.	0	0	350
1161	DLLG21	091	177	42	.	230.83	.	.	.	3788	10	112000000	50100	11	0	1	0.20	.	.	1	.	.	.	0	0	1900
1162	DLLG21	091	177	43	.	230.77	.	.	.	7117	10	112000000	21003	1	0	2	1.70	.	.	.	.	.	.	0	0	5530
1163	DLLG21	091	177	43	.	230.77	.	.	.	7117	10	112000000	21002	10	10	1	1.20	.	3	.	.	.	.	0	0	5720
1164	DLLG21	091	177	42	.	230.80	.	.	.	3788	10	112000000	50100	1	0	2	0.10	.	.	.	.	.	.	0	1	8920
1165	DLLG21	091	177	44	.	230.75		090.85	176.30	7036	10	112000000	90000	10	10	4	0.40	.	.	2	.	.	.	0	1	9810
1166	DLLG21	091	177	44	.	230.75		090.85	176.30	7036	10	112000000	21500	1	0	1	0.10	.	.	.	.	.	.	0	1	9840
1167	DLLG21	091	177	45	.	230.70		090.85	176.30	7159	10	112000000	50100	1	0	3	0.20	.	.	.	.	.	.	0	1	9900
1168	DLLG21	091	177	45	.	230.70		090.85	176.30	7159	10	112000000	21500	1	0	1	0.05	.	.	.	.	.	.	0	1	9910
1169	DLLG21	092	177	44	6	230.70		091.99	176.89	2576	10	112000000	40000	13	11	1	1.00	.	.	2	.	.	.	0	0	3430
1170	DILG21	092	177	.	12	.	.	.	.	6755	10	112000000	11000	10	10	1	0.50	.	.	.	.	.	.	0	0	3950
1171	DLLG21	092	177	46	.	230.63	.	.	.	2964	10	112000000	90000	10	10	1	1.80	.	.	2	.	.	.	0	0	7070
1172	DLLG21	092	181	25	2	231.68	.	.	.	1448	10	112000000	21000	11	10	1	0.80	.	3	.	.	.	.	0	1	870
1173	DLLG21	093	177	16	.	230.72		092.62	175.60	1970	10	112000000	90000	10	10	4	0.10	.	.	.	.	.	.	0	0	2720
1174	DLLG21	093	177	4	.	.	.	.	.	1978	10	112000000	22000	12	0	1	0.20	.	.	.	.	.	.	0	0	7920
1175	DLLG21	094	174	37	.	231.05		093.34	173.72	3055	10	112000000	42600	1	0	1	1.10	.	.	.	.	.	.	0	0	7100
1176	DLLG21	094	175	34	18	231.20		093.52	174.05	6500	10	112000000	22000	1	0	3	0.20	.	.	.	.	.	.	0	0	6720

OBS	SITE	UNINT	ENVEL	STRT	DB	SPROV	WPROV	CAT	CLS	TAXON	ANL	POSTG	QTAG	WEI	SFR	FRU	BCR	BUO	BBR	FULT	FOHR	ONENUM
1177	DLLG21	096	174	27	.	.	.	6604	10	112000000	11066	10 10	1 1.30	.	.	.	.	.	.	.	0 1	4610
1178	DLLG21	096	174	32	18	.	.	7072	10	112000000	31010	19 13	2 6.90	.	.	.	.	.	.	1	0 1	6770
1179	DLLG21	091	177	43	.	230.77	.	7117	10	113000000	90000	10 10	1 0.10	.	.	.	.	.	.	.	0 0	5730
1180	DLLG21	091	177	45	.	230.70	090.85	176.30	7159	10	113000000	40000	14 0	1 0.05	.	.	.	.	.	.	0 1	9960
1181	DLLG21	092	177	54	.	230.25	091.85	176.30	8004	10	113000000	90000	10 10	1 0.10	.	.	.	.	.	.	0 1	9370
1182	DLLG21	093	177	.	12	.	.	6699	10	113000000	22000	12 .	1 0.10	.	.	.	.	.	.	.	0 1	6530
1183	DLLG21	094	192	.	18	232.03	093.06	190.08	4420	10	113000000	40000	13 11	1 0.80	.	.	.	.	.	.	0 1	1880
1184	DLLG21	096	177	31	.	231.35	095.12	176.83	6468	10	113000000	11000	10 10	2 0.20	.	.	.	.	.	.	0 0	4910
1185	DLLG21	061	189	30	16	231.40	060.69	188.55	2686	10	190000000	90000	10 10	3 9.90	.	.	.	.	.	.	0 1	9340
1186	DLLG21	061	188	19	1	231.97	.	.	4401	10	300000000	90000	10 10	4 0.70	.	.	.	.	.	.	0 0	610
1187	DLLG21	061	188	17	1	232.07	.	.	4176	10	300000000	90000	10 10	12 3.00	.	.	.	.	.	.	0 0	750
1188	DLLG21	061	188	18	1	232.03	.	.	4200	10	300000000	40000	13 10	5 2.40	.	.	.	.	.	.	0 0	860
1189	DLLG21	061	188	18	1	232.03	.	.	4200	10	300000000	90000	10 10	7 2.10	.	.	.	.	.	.	0 0	870
1190	DLLG21	061	188	20	1	231.93	.	.	4383	10	300000000	40000	13 9	7 2.50	.	.	.	.	.	.	0 0	1020
1191	DLLG21	061	188	17	1	232.13	.	.	4174	10	300000000	90000	10 10	1 0.10	.	.	.	.	.	.	0 1	7600
1192	DLLG21	061	192	22	2	231.83	.	.	5019	10	300000000	40000	10 10	1 0.10	.	.	.	.	.	.	0 0	90
1193	DLLG21	061	192	19	1	231.97	.	.	4782	10	300000000	90000	10 10	1 0.10	.	.	.	.	.	.	0 0	260
1194	DLLG21	061	192	18	1	232.03	.	.	4371	10	300000000	90000	10 10	4 1.40	.	.	.	.	.	.	0 0	370
1195	DLLG21	061	192	19	1	231.97	.	.	4776	10	300000000	22000	19 0	1 0.05	.	.	.	.	.	.	0 0	460
1196	DLLG21	061	192	18	1	232.03	.	.	4367	10	300000000	90000	10 10	1 0.60	.	.	.	.	.	.	0 0	470
1197	DLLG21	061	192	20	1	231.93	.	.	4792	10	300000000	90000	10 10	7 1.00	.	.	.	.	.	.	0 1	650
1198	DLLG21	061	192	19	.	231.98	.	.	4780	10	300000000	41508	19 3	1 0.20	.	.	.	.	.	.	0 1	6150
1199	DLLG21	061	192	19	1	231.98	.	.	4775	10	300000000	90000	10 10	1 0.10	.	.	.	.	.	.	0 1	6640
1200	DLLG21	078	196	16	.	232.13	.	.	4103	10	300000000	90000	10 10	1 0.30	.	.	.	.	.	.	0 1	1070
1201	DLLG21	086	194	14	.	232.23	.	.	4404	10	300000000	90000	10 10	2 0.20	.	.	.	.	.	.	0 1	960
1202	DLLG21	086	194	14	.	232.23	.	.	4404	10	300000000	90000	13 11	1 0.10	.	.	.	.	.	.	0 1	970
1203	DLLG21	090	177	30	.	231.45	088.92	176.30	7024	10	300000000	22000	11 0	1 0.10	.	.	.	.	.	.	0 1	9390
1204	DLLG21	091	176	41	.	230.87	.	.	6483	10	300000000	90000	10 10	1 0.20	.	.	.	.	.	.	0 1	6380
1205	DLLG21	091	177	42	.	230.83	.	.	3788	10	300000000	22201	1 0	1 0.10	.	.	.	.	.	.	0 0	1870
1206	DLLG21	091	177	42	18	230.77	.	.	6464	10	300000000	22000	1 0	1 0.10	.	.	.	.	.	.	0 0	6140
1207	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	300000000	14002	1 .	2 0.10	.	.	.	.	.	.	0 1	6890
1208	DLLG21	092	177	54	.	230.25	091.85	176.30	8004	10	300000000	22000	11 0	3 0.10	.	.	.	.	.	.	0 1	9360
1209	DLLG21	093	177	19	.	.	.	.	2203	10	300000000	40000	10 10	1 0.10	.	.	.	.	.	.	0 1	3290
1210	DLLG21	093	177	.	12	.	.	.	6699	10	300000000	41200	15 0	1 0.40	.	.	.	.	.	.	0 1	6550
1211	DLLG21	093	177	18	12	230.52	092.05	175.87	6484	10	300000000	50000	1 .	1 0.10	.	.	.	.	.	.	0 1	7180
1212	DLLG21	093	177	18	.	230.56	092.05	176.43	7137	10	300000000	10002	1 .	1 0.10	.	.	.	.	.	.	0 1	7350
1213	DLLG21	094	174	31	18	231.21	093.38	173.14	6487	10	300000000	90000	10 10	4 0.30	.	.	.	.	.	.	0 0	6440
1214	DLLG21	096	174	32	.	231.32	095.56	173.53	7118	10	300000000	50100	1 0	1 0.10	.	.	.	.	.	.	0 0	7430
1215	DLLG21	096	174	26	.	231.63	.	.	3752	10	300000000	40000	10 10	1 0.50	.	.	.	.	.	.	0 1	2890
1216	DLLG21	096	174	26	.	231.63	.	.	3752	10	300000000	90000	10 10	4 0.20	.	.	.	.	.	.	0 1	2910
1217	DLLG21	061	192	19	1	231.98	.	.	4774	10	303010202	51121	1 .	1 0.25	1	.	.	.	.	.	0 1	530
1218	DLLG21	093	177	17	.	230.53	.	.	2558	10	304000000	32050	21 1	1 0.10	2	.	.	.	.	.	0 1	6130
1219	DLLG21	090	177	33	15	231.28	.	.	3950	10	305000000	52121	1 .	1 0.10	2	.	.	.	.	.	0 1	1800
1220	DLLG21	092	177	48	.	230.52	091.12	176.57	3542	10	305000000	41300	13 11	1 0.70	2	.	.	.	.	.	0 1	6300
1221	DLLG21	092	177	36	.	.	.	.	1852	10	305000000	42508	14 0	1 0.30	.	.	.	.	.	.	0 1	9100
1222	DLLG21	093	176	40	.	230.92	092.72	175.75	3737	10	305000000	42100	12 11	1 1.00	.	.	.	.	.	.	0 1	7720
1223	DLLG21	092	177	17	.	.	.	.	1552	10	305010000	31030	12 0	2 1.00	.	.	.	.	.	.	0 0	8970
1224	DLLG21	092	177	42	6	230.82	091.16	176.22	2144	10	305010000	41300	1 .	1 2.00	2	.	.	.	.	.	0 1	3770
1225	DLLG21	092	177	42	6	230.82	091.16	176.22	2144	10	305010000	41200	1 .	1 1.90	2	.	.	.	.	.	0 1	3780

Y82 SP FAUNA BY TAXON

20:49 WEDNESDAY, AUGUST 31, 1988 26

OBS	SITE	UNINT	ENVIRONMENTAL	SURTABD	SPROV	WPROV	CAL	CL	TAXON	AN	P	PORT	QUANT	W	E	S	F	R	U	B	B	F	O	B	O
1226	DLLG21	092	177	42	. 230.80				2141	10	305010000	41508	1	0	1	0.3	1						0	1	8910
1227	DLLG21	093	177	22	. 230.11				5620	10	305010000	31030	11	0	1	0.2							0	0	6740
1228	DLLG21	093	177	8	12 230.52	092.05	175.85		3759	10	305010000	11000	1	0	5	0.9							0	0	7840
1229	DLLG21	093	177	4	.				1978	10	305010000	41200	15	0	1	0.2	2						0	0	7930
1230	DLLG21	093	177	4	.				1978	10	305010000	41300	15	0	1	0.5	2						0	0	7940
1231	DLLG21	093	177	18	12 230.52	092.05	175.87		6484	10	305010000	41200	1	.	1	0.1	2						0	1	7140
1232	DLLG21	093	177	18	12 230.52	092.08	175.87		6484	10	305010000	41300	1	.	1	0.4	2						0	1	7150
1233	DLLG21	093	177	18	12 230.52	092.05	175.87		6484	10	305010000	42508	1	.	1	0.2	2						0	1	7160
1234	DLLG21	093	177	18	12 230.52	092.05	175.87		6484	10	305010000	12000	21	13	2	0.2	1						0	1	7170
1235	DLLG21	093	177	16	. 230.73	092.02	175.23		1944	10	305010000	42508	1	0	1	1.4	2						0	1	8740
1236	DLLG21	093	177	16	. 230.73	092.02	175.23		1944	10	305010000	41508	1	0	1	0.9	2						0	1	8750
1237	DLLG21	093	177	13	. 231.13	092.52	175.72		1356	10	305020101	51122	1	.	1	0.8	1						0	1	1640
1238	DLLG21	061	192	18	1 232.03				4366	10	305030000	22000	11	.	1	0.1							0	1	550
1239	DLLG21	091	177	42	. 230.83				3788	10	305030000	42400	15	0	1	1.3	2						0	0	7720
1240	DLLG21	093	177	12	.				6775	10	305030000	42508	1	.	1	1.8	1	3					0	1	5930
1241	DLLG21	093	177	12	.				6775	10	305030000	42508	1	.	1	2.3	1	3					0	1	5940
1242	DLLG21	090	177	42	. 230.83				6461	10	305030101	42400	15	0	1	7.4	1						0	0	8270
1243	DLLG21	093	177	.	.				7063	10	305030101	41300	1	0	1	6.4	2						0	0	8200
1244	DLLG21	093	177	.	.				7063	10	305030101	41300	15	0	1	3.4	1						0	0	8210
1245	DLLG21	093	177	.	.				7063	10	305030101	41200	1	0	1	2.9							0	0	8220
1246	DLLG21	093	177	.	.				7063	10	305030101	41200	12	0	1	2.3						1	0	0	8230
1247	DLLG21	091	177	42	. 230.83				3788	10	305030300	41100	15	0	1	4.2	2					1	0	0	7710
1248	DLLG21	092	177	12	.				6755	10	305030301	41508	1	0	1	1.6	2						0	0	7850
1249	DLLG21	093	177	. 12	.	092.74	176.64		6588	10	305030301	11004	1	.	1	3.1							0	1	4240
1250	DLLG21	093	177	. 12	.	092.74	176.64		6588	10	305030301	11000	1	.	1	6.5							0	1	4250
1251	DLLG21	093	177	. 12	.	092.74	176.64		6588	10	305030301	12000	1	.	1	4.1							0	1	4260
1252	DLLG21	093	177	. 12	.	092.74	176.64		6588	10	305030301	21100	1	.	1	6.1							0	1	4290
1253	DLLG21	091	177	35	. 231.18				5843	10	305040000	31010	1	.	1	0.8	1						0	1	2300
1254	DLLG21	092	177	41	. 230.81	091.18	176.15		2374	10	305040000	41508	1	0	1	1.4	2						0	0	7370
1255	DLLG21	092	177	41	6 230.86	091.53	176.88		2565	10	305040000	51113	1	.	1	0.2	2						0	1	2380
1256	DLLG21	093	177	4	.				1978	10	305040000	41508	1	0	1	0.7							0	0	7890
1257	DLLG21	093	177	. 12	.				6699	10	305040000	41508	1	.	1	0.7	1						0	1	6510
1258	DLLG21	061	192	19	1 231.18				4777	10	305040100	21000	11	.	1	0.1							0	1	560
1259	DLLG21	092	177	41	. 230.85	091.77	176.84		1898	10	305040100	41100	12	.	1	3.2	1				0		0	1	5960
1260	DLLG21	094	174	35	. 231.04	093.72	173.85		2811	10	305040100	50000	1	.	4	0.6							0	1	6110
1261	DLLG21	093	177	13	. 231.04	092.43	175.76		1375	10	305040101	41508	1	0	1	1.7	1						0	0	1210
1262	DLLG21	093	177	13	. 231.04	092.43	175.76		1375	10	305040101	40300	1	0	1	2.3	1						0	0	1220
1263	DLLG21	093	177	13	. 231.04	092.43	175.76		1375	10	305040101	41200	1	0	1	1.0	1						0	0	1230
1264	DLLG21	093	177	13	.				1402	10	305040101	41100	15	.	1	1.4	1						0	1	5950
1265	DLLG21	093	177	16	. 230.73	092.50	176.68		2905	10	305040101	41200	1	.	1	0.7	2						0	1	6390
1266	DLLG21	093	177	18	. 230.56	092.05	176.43		7137	10	305040101	11000	10	10	7	2.9							0	1	7360
1267	DLLG21	093	177	13	. 230.93				1400	10	305040101	51112	1	.	1	0.3	1						0	1	7440
1268	DLLG21	094	174	37	18 231.05	093.93	173.44		3053	10	305040101	50120	1	0	1	0.4	1						0	1	10
1269	DLLG21	094	174	37	18 231.05	093.93	173.44		3053	10	305040101	41508	1	0	1	1.5	1						0	1	20
1270	DLLG21	094	174	34	18	.			2613	10	305040101	42508	15	10	1	0.6	1						0	1	2450
1271	DLLG21	094	174	34	18	.			2613	10	305040101	52123	1	.	1	0.1	1						0	1	2460
1272	DLLG21	094	174	35	. 231.04	093.72	173.85		2811	10	305040101	42508	15	.	1	0.8	1						0	1	6100
1273	DLLG21	096	174	26	. 231.63				3752	10	305040101	31030	1	.	1	1.2							0	1	2880
1274	DLLG21	093	177	. 12	.				6699	10	305040201	42508	1	.	1	0.3	2						0	1	6520

OBS	SITE	NUM	LEVEL	STAB	SPROV	WPROV	CALS	TAXON	ANL	POR	QUANT	WEIGHT	SF	FR	BU	CR	BUL	FO	ON		
1324	DLLG21	092	177	47	230.55	091.05	176.21	2977	10	307010401	41100	1	0	1	2.3	1	.	.	0	7530	
1325	DLLG21	092	177	47	230.55	091.05	176.21	2977	10	307010401	42100	1	0	1	2.0	1	.	.	0	7540	
1326	DLLG21	092	177	43	230.78	091.91	176.79	2162	30	307010401	41100	1	0	1	4.9	2	.	.	0	7560	
1327	DLLG21	092	177	43	230.78	091.91	176.79	2162	10	307010401	42100	1	0	1	2.9	2	.	.	0	7570	
1328	DLLG21	092	177	.	231.30	091.70	176.85	6283	10	307010401	31030	1	0	1	1.8	1	.	.	0	9610	
1329	DLLG21	092	177	48	230.52	091.27	176.50	3545	10	307010401	42100	1	0	1	2.0	1	.	.	0	9630	
1330	DLLG21	092	177	49	12	.	.	7116	10	307010401	11021	1	0	1	0.9	.	.	.	0	9660	
1331	DLLG21	092	177	49	12	.	.	7116	10	307010401	31010	1	0	1	0.7	1	.	.	0	9670	
1332	DLLG21	092	177	49	12	.	.	7116	10	307010401	31010	1	0	1	0.8	2	.	.	0	9680	
1333	DLLG21	092	177	49	12	.	.	7116	10	307010401	31030	1	0	1	1.0	1	.	.	0	9690	
1334	DLLG21	092	177	49	12	.	.	7116	10	307010401	42101	14	0	1	0.4	3	.	.	0	9720	
1335	DLLG21	092	177	49	12	230.47	.	7116	10	307010401	41200	1	0	1	0.3	2	.	.	0	9900	
1336	DLLG21	092	177	49	12	230.50	.	7116	10	307010401	41300	1	0	1	1.2	2	.	.	0	9990	
1337	DLLG21	092	177	44	6	230.74	091.90	176.89	2583	10	307010401	31030	1	.	1	1.9	2	4	.	0	2110
1338	DLLG21	092	177	45	6	230.55	091.71	175.93	2755	10	307010401	32077	1	.	1	3.8	1	.	.	0	3760
1339	DLLG21	092	177	48	12	230.50	.	3548	10	307010401	23000	1	0	1	3.2	.	.	.	0	9030	
1340	DLLG21	092	177	49	12	230.50	.	7116	10	307010401	42508	1	0	1	2.3	1	.	.	0	9040	
1341	DLLG21	093	177	17	.	.	.	2199	10	307010401	41508	1	0	1	1.1	1	.	.	0	1240	
1342	DLLG21	093	177	14	230.90	092.74	176.70	1968	10	307010401	42400	1	0	1	6.4	2	.	.	0	1250	
1343	DLLG21	093	177	14	230.90	092.74	176.70	1968	10	307010401	25000	18	0	1	0.2	2	.	.	0	1260	
1344	DLLG21	093	177	16	230.73	092.50	176.68	2905	10	307010401	41300	1	0	1	2.5	1	.	.	0	1270	
1345	DLLG21	093	177	16	230.73	092.50	176.68	2905	10	307010401	41200	1	0	1	1.0	1	.	.	0	1280	
1346	DLLG21	093	177	16	230.71	092.40	176.80	2909	10	307010401	42300	12	0	1	0.1	2	.	.	0	1290	
1347	DLLG21	093	177	16	230.71	092.40	176.80	2909	10	307010401	41508	1	0	1	0.9	2	.	.	0	1300	
1348	DLLG21	093	177	16	230.71	092.40	176.80	2909	10	307010401	42100	1	0	1	2.9	1	3	.	0	1310	
1349	DLLG21	093	177	16	230.71	092.40	176.80	2909	10	307010401	42400	1	0	1	3.2	1	3	.	0	1320	
1350	DLLG21	093	177	16	230.71	092.40	176.80	2909	10	307010401	42400	1	0	1	3.2	2	3	.	0	1330	
1351	DLLG21	093	177	15	230.87	092.70	176.75	2902	10	307010401	42400	1	0	1	4.2	2	4	.	0	1340	
1352	DLLG21	093	177	15	230.87	092.70	176.75	2902	10	307010401	31030	1	0	1	1.8	2	.	.	0	1350	
1353	DLLG21	093	177	15	230.87	092.70	176.75	2902	10	307010401	32020	3	0	1	0.7	2	.	.	0	1360	
1354	DLLG21	093	177	.	.	.	.	7060	10	307010401	42100	1	0	1	5.3	2	.	.	0	3670
1355	DLLG21	093	177	.	.	.	.	7060	10	307010401	42100	1	0	1	5.3	1	1	.	0	3680
1356	DLLG21	093	177	.	.	.	.	7060	10	307010401	41200	1	0	1	1.0	2	.	.	0	3690
1357	DLLG21	093	177	.	.	.	.	7060	10	307010401	31030	1	0	1	1.1	1	.	.	0	3700
1358	DLLG21	093	177	.	.	.	.	7060	10	307010401	41300	1	0	1	2.7	2	.	.	0	3710
1359	DLLG21	093	177	.	.	.	.	7060	10	307010401	42400	1	0	1	7.0	2	4	.	0	3720
1360	DLLG21	093	177	.	.	.	.	7060	10	307010401	23000	16	0	1	2.1	.	.	.	0	3730
1361	DLLG21	093	177	18	230.48	.	.	1946	10	307010401	11001	1	0	1	1.2	.	.	.	0	9550	
1362	DLLG21	093	177	16	230.76	092.48	175.76	2375	10	307010401	42400	15	0	1	5.1	1	.	.	0	9580	
1363	DLLG21	093	177	16	230.76	092.48	175.76	2375	10	307010401	42400	13	12	1	3.0	1	.	.	0	9590	
1364	DLLG21	093	177	16	230.76	092.48	175.76	2375	10	307010401	42400	15	0	1	1.9	2	.	.	0	9600	
1365	DLLG21	093	177	.	.	.	.	7060	10	307010401	41200	1	0	1	0.8	2	.	.	0	9730
1366	DLLG21	093	177	.	.	.	.	7060	10	307010401	41300	1	0	1	1.9	2	.	.	0	9740
1367	DLLG21	093	177	.	.	.	.	7060	10	307010401	42100	12	0	1	1.5	1	.	.	0	9750
1368	DLLG21	093	177	.	.	.	.	7063	10	307010401	41100	1	0	1	2.2	1	.	.	0	9920
1369	DLLG21	093	177	.	.	.	.	7063	10	307010401	41100	1	0	1	2.2	2	.	.	0	9930
1370	DLLG21	093	177	.	.	.	.	7063	10	307010401	42400	12	0	1	2.2	1	.	.	0	9940
1371	DLLG21	093	177	.	.	.	.	7063	10	307010401	41300	1	0	1	1.1	2	.	.	0	9950
1372	DLLG21	093	177	.	.	.	.	7063	10	307010401	42400	12	0	1	1.9	2	.	.	0	9960

OBS	SITE	NUNIT	ELENT	STRD	SPROV	WPROV	CAT	CLN	TAXON	ANL	PORT	QUSENT	WEIGHT	ISF	FRU	EUPR	JUV	BB	BUL	FO	R	H	E	X	BONENUM
1373	DLLG21	093	177	18					7164	10	307010401	23000	1	0	1	3.1							0	1	30
1374	DLLG21	093	177						1978	10	307010401	31010	1			0.9	2						0	1	2960
1375	DLLG21	093	177	17					2918	10	307010401	42508	15	0	1	1.8	1						0	1	8800
1376	DLLG21	093	177						7063	10	307010401	42100	1	0	1	1.1	2						0	1	8870
1377	DLLG21	093	177						7063	10	307010401	42508	1	0	1	3.6	2						0	1	8900
1378	DLLG21	093	179	18					6174	10	3070:0401	42300	11	0	1	0.2	2						0	1	0
1379	DLLG21	094	174	38	18	231.03	093.31	173.12	3249	10	307010401	41300	1	0	1	2.5	1						0	0	9760
1380	DLLG21	094	174	38	18	231.03	093.31	173.12	3249	10	307010401	41508	1	0	1	1.1	1						0	0	9770
1381	DLLG21	094	174	38	18	231.03	093.31	173.12	3249	10	307010401	41200	12	0	1	0.8	2						0	0	9780
1382	DLLG21	094	174	40					6594	10	307010401	41100	1			4.5	1						0	1	4340
1383	DLLG21	094	174	40					6594	10	307010401	41200	1			0.9	1						0	1	4350
1384	DLLG21	091	177	33	17	231.28	090.90	176.97	5840	10	307010501	42100	15	12	1	51.2	1						0	1	6270
1385	DLLG21	092	177	43	6	230.75	091.87	176.73	2332	10	307010501	42200	1			1.5	1						0	1	5660
1386	DLLG21	093	177	12					6699	10	307010501	42400	15			0.7	1						0	1	6540
1387	DLLG21	093	177						7060	10	307010501	42100	1			7	1.3	2			0		0	1	7390
1388	DLLG21	061	188	19	1	231.98			4397	10	307020000	52113	1			0.3							0	1	6730
1389	DLLG21	061	192	20	1	231.93			4791	10	307020100	41100	11	1	1	5.2	1						0	0	7780
1390	DLLG21	092	177	42	6	230.80	091.98	176.81	2146	10	307020101	42400	1			6.6	1	4		1			0	1	6690
1391	DLLG21	061	188	17	1	232.10			4167	10	307030000	50100	1	0	1	0.2							0	1	8660
1392	DLLG21	092	177	46	6	230.61	091.89	176.61	2932	10	307030000	42100	12	0	1	0.9							0	1	8670
1393	DLLG21	092	177	36					1852	10	308010100	50112	1	0	1	1.2	1						0	0	7290
1394	DLLG21	092	177	35	15	231.15	091.80	176.21	1836	10	308010100	41508	1			5.1	1						0	1	7050
1395	DLLG21	094	174	35	18	231.04	093.31	173.86	2805	10	308010100	42400	15	0	1	14.5	2						0	0	7300
1396	DLLG21	092	177	35					1833	10	308010101	51009	1			0.3	1				1		0	1	7580
1397	DLLG21	061	188	19	1	231.97			4401	10	309000000	40000	13	2	1	1.1							0	0	600
1398	DLLG21	093	177	18	12	230.52	092.05	175.87	6484	10	309020000	41200	1			2	0.1	2					0	1	7080
1399	DLLG21	093	177	18	12	230.52	092.05	175.87	6484	10	309020000	42508	1			2	0.3	1					0	1	7090
1400	DLLG21	093	177	18	12	230.52	092.05	175.87	6484	10	309020000	42508	1			1	0.1	2					0	1	7100
1401	DLLG21	093	177	18	12	230.52	092.05	175.87	6484	10	309020000	42400	15			2	0.2	1					0	1	7110
1402	DLLG21	093	177	18	12	230.52	092.05	175.87	6484	10	309020000	41300	1			1	0.2	2					0	1	7120
1403	DLLG21	093	177	18	12	230.52	092.05	175.87	6484	10	309020000	41300	1			2	0.4	1					0	1	7130
1404	DLLG21	090	177	34		231.20			6972	10	310010301	41200	1	0	1	0.1	1						0	1	9000
1405	DLLG21	090	177	32		231.35			3983	10	310010301	41300	1	0	1	0.3	1						0	1	9010
1406	DLLG21	092	177	38	5	231.03	091.28	176.53	1866	10	310010301	23000	22	3	1	0.3							0	1	8680
1407	DLLG21	092	177	12					6755	10	310010301	41100	1	0	1	0.6	2						0	1	8990
1408	DLLG21	092	177	36					1852	10	310010301	41100	12	0	1	0.3	2						0	1	9060
1409	DLLG21	092	177	36					1852	10	310010301	41300	12	0	1	0.2	2						0	1	9070
1410	DLLG21	093	177			231.93			1978	10	310010301	41100	1	0	1	0.6	1						0	1	8690
1411	DLLG21	093	177			231.93			1978	10	310010301	41300	1	0	1	0.4	1						0	1	8700
1412	DLLG21	093	177			231.93			1978	10	310010301	41200	1	0	1	0.2	1						0	1	8710
1413	DLLG21	999	999						7125	10	310010301	31030	1	0	1	0.3	1						0	1	8890
1414	DLLG21	092	177	36					1852	10	310103001	31010	12	0	1	0.1	2						0	1	9080
1415	DLLG21	096	174	16					6313	10	311000000	90000	10	10	3	0.4							0	0	3990
1416	DLLG21	078	196	16		232.13			4103	10	317000000	41100	1			1	0.1	2					0	1	6120
1417	DLLG21	092	177	40	6	230.90			1888	10	317000000	42100	1			1	0.3	2					0	1	6200
1418	DLLG21	092	177	40	6	230.90			1888	10	317000000	42400	12			1	0.2	2					0	1	6210
1419	DLLG21	092	177	40	6	230.90			1888	10	317000000	31010	12			1	0.2	1					0	1	6220
1420	DLLG21	093	177	12					6775	10	317000000	41100	1			1	0.2	2					0	1	5860
1421	DLLG21	093	177	12					6775	10	317000000	41300	1			1	0.1	1					0	1	5870

OBS	SITE	NUMINT	EUNVEL	LENT	SRTD	SPROV	WPROV	CALS	TAXON	ANL	PORT	SEB	QUANT	WEIGHT	SFU	FRUIT	BUON	CRACK	BBT	FOLK	FOA	REX	BONENUM		
1422	DLLG21	093	177	12	.	.	.	6775	10	317000000	41508	1	.	1	0.60	2	.	.	.	.	.	.	0	1	5880
1423	DLLG21	093	177	12	.	231.13	.	1295	10	317000000	21411	19	1	1	0.10	.	.	.	.	.	.	.	0	1	6250
1424	DLLG21	093	177	18	12	230.52	092.02	175.90	7136	10	317000000	11001	1	0	1	0.10	.	.	.	.	.	.	0	1	8730
1425	DLLG21	091	176	41	.	230.87	.	3787	10	317040000	21411	1	.	1	1.50	.	.	.	.	.	.	.	0	1	6010
1426	DLLG21	091	176	41	.	230.87	.	3787	10	317040000	23000	1	.	1	1.20	.	.	.	.	.	.	.	0	1	6020
1427	DLLG21	091	176	41	.	230.87	.	3787	10	317040000	42100	1	.	1	0.50	1	.	.	.	.	.	.	0	1	6040
1428	DLLG21	091	176	41	.	230.87	.	3787	10	317040000	42100	1	.	1	0.50	2	.	.	.	.	.	.	0	1	6050
1429	DLLG21	091	176	41	.	230.87	.	3787	10	317040000	41100	1	.	1	1.60	2	.	.	.	.	.	.	0	1	6060
1430	DLLG21	091	176	41	.	230.87	.	3787	10	317040000	42508	1	.	1	0.70	1	.	.	.	.	.	.	0	1	6070
1431	DLLG21	091	176	41	.	230.87	.	3787	10	317040000	42400	1	.	1	1.20	1	.	.	.	.	.	.	0	1	6080
1432	DLLG21	091	176	41	.	230.87	.	3787	10	317040000	41300	1	.	1	1.40	2	.	.	.	.	.	.	0	1	6090
1433	DLLG21	091	176	41	.	230.81	.	6483	10	317040000	22000	1	.	2	0.10	.	.	.	.	.	.	.	0	1	6320
1434	DLLG21	091	176	41	.	230.87	.	6483	10	317040000	22000	12	.	2	0.10	.	.	.	.	.	.	.	0	1	6330
1435	DLLG21	091	176	41	.	230.87	.	6483	10	317040000	23000	17	6	1	0.10	1	.	.	.	.	.	.	0	1	6340
1436	DLLG21	091	176	41	.	230.87	.	6483	10	317040000	31010	15	4	1	0.20	2	.	.	.	.	.	.	0	1	6350
1437	DLLG21	091	176	41	.	230.87	.	6483	10	317040000	51003	1	.	1	0.10	.	.	.	.	.	.	.	0	1	6370
1438	DLLG21	092	177	50	12	230.43	.	3838	10	317040000	41300	1	0	1	0.30	2	.	.	.	.	.	.	0	0	8000
1439	DLLG21	092	177	41	.	230.86	091.09	175.83	2161	10	317040400	12000	12	13	1	0.30	2	.	.	.	.	.	0	1	7250
1440	DLLG21	091	176	41	.	230.87	.	6483	10	317040402	22000	19	.	3	0.10	.	.	.	.	.	.	.	0	1	6310
1441	DLLG21	091	176	41	.	230.87	.	6483	10	317040402	41508	1	.	1	0.80	2	.	.	.	.	.	.	0	1	6360
1442	DLLG21	092	177	41	.	230.86	091.09	175.83	2161	10	317040402	11000	1	.	1	2.60	.	.	.	.	.	.	0	1	6860
1443	DLLG21	092	177	41	.	230.86	091.09	175.83	2161	10	317040402	11004	18	10	1	0.40	2	.	.	.	.	.	0	1	6870
1444	DLLG21	092	177	41	.	230.86	091.09	175.83	2161	10	317040402	12000	1	.	1	0.50	2	.	.	.	.	.	0	1	6880
1445	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	317040402	25000	16	10	1	0.10	.	.	.	.	.	.	0	1	6900
1446	DLLG21	092	177	42	6	230.81	090.90	175.86	2145	10	317040402	41200	1	.	1	0.30	1	.	.	.	.	.	0	1	6910
1447	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	317040402	41300	1	.	1	1.40	1	.	.	.	.	.	0	1	6920
1448	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	317040402	41100	1	.	1	1.60	1	.	.	.	.	.	0	1	6930
1449	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	317040402	31010	1	.	1	0.30	1	.	.	.	.	.	0	1	6940
1450	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	317040402	31030	1	.	1	0.40	1	.	.	.	.	.	0	1	6950
1451	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	317040402	31030	1	.	1	0.40	2	.	.	.	.	.	0	1	6960
1452	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	317040402	25000	12	.	2	0.10	1	.	.	.	.	.	0	1	7000
1453	DLLG21	061	192	20	1	231.93	.	4792	10	318000000	90000	13	11	1	0.50	.	.	.	.	.	.	.	0	1	610
1454	DLLG21	092	177	36	.	.	.	1852	10	318000000	50000	1	0	1	0.40	.	.	.	.	.	.	.	0	1	9110
1455	DLLG21	094	174	35	18	231.04	093.31	173.86	2805	10	318000000	80002	10	10	15	1.50	.	.	.	.	.	.	0	0	7310
1456	DLLG21	094	174	35	18	231.04	093.31	173.86	2805	10	318000000	40000	10	10	12	7.90	.	.	.	.	.	.	0	0	7320
1457	DLLG21	061	188	20	1	231.93	.	4379	10	319000000	40000	19	11	2	0.80	.	.	.	.	.	.	.	0	1	7510
1458	DLLG21	061	188	17	1	232.10	.	4172	10	319000000	41100	11	1	1	2.10	.	.	.	.	.	.	.	0	1	8950
1459	DLLG21	061	188	18	1	230.50	.	4209	10	319000000	50103	1	0	1	0.20	.	.	.	.	.	.	.	0	1	9050
1460	DLLG21	061	192	17	1	232.07	.	4151	10	319000000	40000	10	10	7	2.50	.	.	.	.	.	.	1	0	0	10
1461	DLLG21	061	192	17	1	232.07	.	4148	10	319000000	21000	1	0	1	0.90	.	.	.	.	.	.	.	0	0	9910
1462	DLLG21	091	176	41	.	230.87	.	3787	10	319000000	40000	19	11	1	1.50	.	.	.	.	.	.	.	0	1	6030
1463	DLLG21	092	177	49	.	.	.	7116	10	319000000	52113	1	0	1	0.10	1	.	.	.	.	.	.	0	0	7360
1464	DLLG21	092	177	49	12	230.50	.	7116	10	319000000	42400	13	11	1	3.40	.	.	.	.	.	.	1	0	0	9980
1465	DLLG21	092	177	50	.	230.43	.	3838	10	319000000	40000	13	11	1	0.90	.	.	.	.	.	.	.	0	1	3900
1466	DLLG21	092	177	36	.	.	.	1852	10	319000000	50000	1	0	1	0.10	.	.	.	.	.	.	.	0	1	9120
1467	DLLG21	093	177	.	12	.	.	6775	10	319000000	40000	14	0	1	1.20	.	.	.	.	.	.	.	0	0	4160
1468	DLLG21	093	177	16	6	230.73	092.12	176.82	3727	10	319000000	90000	13	10	3	1.30	.	.	.	.	.	.	0	1	1480
1469	DLLG21	093	177	.	12	.	092.74	176.64	6588	10	319000000	10002	1	.	1	0.10	.	.	.	.	.	.	0	1	4270
1470	DLLG21	093	177	.	12	.	.	6699	10	319000000	11012	16	3	1	0.30	.	.	.	.	.	.	.	0	1	6570

Y82 SP FAUNA BY TAXON

20:49 WEDNESDAY, AUGUST 31, 1988 31

OBS	SITE	UNIT	EUN	LEV	STRA	DB	SPROV	WPROV	CAL	TAXON	ANL	POR	SENT	WEIGHT	ISF	FRU	BUO	BBR	FOCK	PHR	ONENUM		
1471	DLLG21	094	174	37	.	.	.	.	6208	10	319000000	42400	13	9	1	2.20	.	.	.	.	0	0	2300
1472	DLLG21	094	174	29	.	231.48	.	.	2445	10	319000000	40000	13	11	1	1.00	.	.	.	.	0	1	2550
1473	DLLG21	094	174	28	.	.	.	.	2433	10	319000000	40000	13	10	1	0.30	.	.	.	.	0	1	2660
1474	DLLG21	094	175	25	.	.	.	.	6195	10	319000000	42400	13	13	2	2.21	.	.	.	.	0	0	3210
1475	DLLG21	096	174	32	.	.	095.56	173.53	7118	10	319000000	50100	1	0	1	0.30	.	.	.	.	0	1	8820
1476	DLLG21	999	999	.	.	.	.	.	7125	10	319000000	42100	14	0	1	1.20	.	.	1	1	0	0	9640
1477	DLLG21	061	188	17	1	232.07	.	.	4176	10	320000000	41100	11	.	1	0.60	.	.	.	.	0	0	790
1478	DLLG21	061	188	19	1	231.97	.	.	4396	10	320000000	41100	11	2	1	1.00	.	.	.	.	0	0	800
1479	DLLG21	061	188	18	1	232.03	.	.	4211	10	320000000	40000	24	0	2	0.30	.	.	.	.	0	1	130
1480	DLLG21	061	188	20	1	231.93	.	.	4379	10	320000000	40000	19	11	1	0.10	.	.	.	.	0	1	7500
1481	DLLG21	061	192	17	1	232.07	.	.	4150	10	320000000	21100	1	0	1	0.50	.	.	.	.	0	0	9810
1482	DLLG21	061	192	19	1	231.97	.	.	4778	10	320000000	21100	1	0	1	0.50	.	.	.	1	0	0	9820
1483	DLLG21	061	192	16	1	232.13	.	.	4346	10	320000000	32070	10	10	1	0.70	.	.	.	.	0	1	7630
1484	DLLG21	091	177	43	.	230.77	.	.	7117	10	320000000	41100	13	11	1	1.40	.	.	.	.	0	0	8080
1485	DLLG21	091	177	42	.	230.85	090.60	176.80	7021	10	320000000	23000	10	0	1	0.20	.	.	.	.	0	1	9440
1486	DLLG21	091	177	46	.	230.65	090.85	176.30	7037	10	320000000	50100	1	0	4	0.60	.	.	.	.	0	1	9750
1487	DLLG21	091	177	46	.	230.65	090.85	176.30	7037	10	320000000	52155	1	0	1	0.05	.	.	.	.	0	1	9760
1488	DLLG21	091	177	46	.	230.75	090.85	176.30	7157	10	320000000	50100	1	0	4	0.60	.	.	.	.	0	1	9800
1489	DLLG21	091	177	44	.	230.75	090.85	176.30	7036	10	320000000	90000	10	10	2	0.10	.	.	2	.	0	1	9820
1490	DLLG21	091	177	42	.	230.85	090.20	176.55	7020	10	320000000	21002	1	0	1	0.10	.	.	.	.	0	1	9930
1491	DLLG21	092	177	33	17	231.27	.	.	1797	10	320000000	90000	10	10	1	2.00	.	.	.	.	0	0	2020
1492	DLLG21	092	177	21	2	231.85	.	.	1564	10	320000000	41100	19	0	1	1.50	.	.	.	.	0	0	2160
1493	DLLG21	092	177	28	3	231.53	.	.	1623	10	320000000	90000	10	10	1	0.60	.	.	.	.	0	0	2260
1494	DLLG21	092	177	43	6	230.78	091.91	176.79	2162	10	320000000	25000	11	0	1	0.20	.	.	.	.	0	0	7580
1495	DLLG21	092	177	12	.	.	.	.	6755	10	320000000	21100	1	0	1	0.30	.	.	.	.	0	0	9650
1496	DLLG21	092	177	49	12	.	.	.	7116	10	320000000	41300	13	0	1	1.00	1	.	.	.	0	0	9700
1497	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	320000000	22000	1	.	4	0.20	.	.	.	.	0	1	6970
1498	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	320000000	22000	12	.	2	0.10	.	.	.	.	0	1	6980
1499	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	320000000	22000	19	.	1	0.10	.	.	.	.	0	1	6990
1500	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	320000000	21100	1	.	2	0.30	.	.	.	.	0	1	7010
1501	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	320000000	21200	1	.	1	0.10	.	.	.	.	0	1	7020
1502	DLLG21	092	177	42	6	230.81	091.00	175.86	2145	10	320000000	21300	1	.	2	0.30	.	.	.	.	0	1	7030
1503	DLLG21	093	177	.	12	.	.	.	6775	10	320000000	42400	13	11	1	1.00	1	.	.	.	0	0	4150
1504	DLLG21	093	177	.	.	.	.	.	7063	10	320000000	31010	1	0	1	0.70	2	.	.	.	0	0	9970
1505	DLLG21	093	177	14	.	230.83	092.50	176.50	1503	10	320000000	90000	13	10	1	0.20	.	.	.	.	0	1	1540
1506	DLLG21	093	177	.	12	.	.	.	6699	10	320000000	41300	14	.	1	0.20	1	.	.	.	0	1	6560
1507	DLLG21	093	177	.	12	.	.	.	6699	10	320000000	90000	10	10	2	0.30	.	.	.	.	0	1	6580
1508	DLLG21	093	177	.	.	231.93	.	.	1978	10	320000000	42508	15	0	1	1.10	.	.	.	.	0	1	8720
1509	DLLG21	093	177	.	.	.	.	.	7063	10	320000000	42508	1	0	2	0.30	.	.	.	.	0	1	8960
1510	DLLG21	093	177	18	.	230.48	.	.	7164	10	320000000	31010	1	0	1	0.50	.	.	.	.	0	1	9140
1511	DLLG21	093	177	18	.	230.48	.	.	7164	10	320000000	31010	12	0	1	0.30	.	.	.	.	0	1	9150
1512	DLLG21	094	174	31	18	231.21	093.38	173.14	6487	10	320000000	23000	16	0	2	1.90	.	.	.	.	0	0	6420
1513	DLLG21	094	174	31	18	231.21	093.38	173.14	6487	10	320000000	22000	1	0	1	0.10	.	.	.	.	0	0	6430
1514	DLLG21	096	174	32	18	.	.	.	7072	10	320000000	40000	19	11	1	0.30	.	.	.	.	0	1	5250
1515	DLLG21	061	189	27	2	231.57	.	.	4981	10	321000000	40000	13	2	1	0.20	.	.	.	.	0	0	570
1516	DLLG21	090	177	35	.	231.20	088.93	176.30	7005	10	321000000	42100	14	0	1	0.10	.	.	.	.	0	1	9890
1517	DLLG21	092	177	36	.	.	.	.	1852	10	321000000	31013	13	0	1	0.10	.	.	.	.	0	1	9090
1518	DLLG21	093	177	.	.	.	.	.	7063	10	321000000	22000	1	0	4	0.30	.	.	.	.	0	0	8240
1519	DLLG21	093	177	.	.	.	.	.	7060	10	321000000	42400	12	13	1	0.20	2	.	.	.	0	1	7400

OBS	SITE	UNIT	NEVELE	STARD	SPROV	WPROV	CALS	TAXON	ANLE	PORT	QUAGNT	SFRUI	FRU	BCR	BBE	BFOR	FOH	ONE		
1569	DLLG21	091	177	42	.230.85	090.60	176.80	7021	10	400000000	21002	1	0	1	0.30	.	.	0	1	9410
1570	DLLG21	091	177	42	.230.85	090.60	176.80	7021	10	400000000	22000	12	0	4	0.30	.	.	0	1	9420
1571	DLLG21	091	177	42	.230.85	090.60	176.80	7021	10	400000000	22000	13	0	2	0.10	.	.	0	1	9430
1572	DLLG21	091	177	42	.230.85	090.60	176.80	7021	10	400000000	90000	10	10	4	0.40	.	.	0	1	9460
1573	DLLG21	091	177	43	.231.79	090.10	176.90	7181	10	400000000	22000	10	0	7	0.10	.	.	0	1	9510
1574	DLLG21	091	177	43	.231.79	090.10	176.90	7181	10	400000000	10000	10	0	4	0.30	.	.	0	1	9520
1575	DLLG21	091	177	44	.230.75	090.85	176.30	7036	10	400000000	22000	1	0	2	0.05	.	.	0	1	9640
1576	DLLG21	091	177	46	.230.65	090.85	176.30	7037	10	400000000	22000	12	0	2	0.05	.	.	0	1	9730
1577	DLLG21	091	177	46	.230.75	090.85	176.30	7157	10	400000000	22000	19	0	5	0.20	.	.	0	1	9790
1578	DLLG21	091	177	46	.230.75	090.85	176.30	7157	10	400000000	22000	10	10	4	0.10	.	.	0	1	9860
1579	DLLG21	091	177	42	.230.85	090.20	176.55	7020	10	400000000	21002	1	0	1	0.10	.	.	0	1	9940
1580	DLLG21	092	177	.	.230.47	.	.	7068	10	400000000	21000	19	0	1	0.05	.	.	0	0	3510
1581	DLLG21	092	177	.12	.	.	.	6755	10	400000000	21225	1	0	1	0.60	.	.	0	0	3940
1582	DLLG21	092	177	48	.230.52	091.28	176.47	6466	10	400000000	11058	1	0	14	0.20	.	.	0	0	6240
1583	DLLG21	092	177	48	.230.52	091.28	176.47	6466	10	400000000	21002	10	10	2	0.10	.	.	0	0	6260
1584	DLLG21	092	177	49	.230.47	.	.	7126	10	400000000	11058	1	0	3	0.05	.	.	0	0	6370
1585	DLLG21	092	177	49	.230.47	.	.	7126	10	400000000	21002	1	0	7	0.20	.	.	0	0	6380
1586	DLLG21	092	177	49	.230.47	.	.	7126	10	400000000	22000	10	10	40	0.50	.	.	0	0	6390
1587	DLLG21	092	177	12	.	.	.	6755	10	400000000	22000	1	0	2	0.50	.	.	0	0	7870
1588	DLLG21	092	177	34	.	.	.	1819	10	400000000	61001	1	0	1	0.10	.	.	0	1	70
1589	DLLG21	092	177	42	.230.82	091.97	176.85	2567	10	400000000	90000	10	10	4	0.02	.	.	0	1	1970
1590	DLLG21	092	177	41	.230.86	091.53	176.88	2565	10	400000000	22000	10	10	3	0.10	.	.	0	1	2370
1591	DLLG21	092	177	40	.230.94	091.53	176.86	2563	10	400000000	21500	1	.	1	0.10	.	.	0	1	2390
1592	DLLG21	092	177	45	.230.67	091.33	176.35	2754	10	400000000	22000	10	10	15	0.30	.	.	0	1	3820
1593	DLLG21	092	177	41	.230.88	091.50	176.88	2573	10	400000000	22000	10	10	3	0.05	.	.	0	1	4100
1594	DLLG21	092	177	49	.230.48	.	.	7116	10	400000000	21225	19	.	2	0.10	.	.	0	1	4830
1595	DLLG21	092	177	35	.	.	.	1834	10	400000000	61001	12	.	1	0.10	.	.	0	1	6470
1596	DLLG21	092	177	35	.	.	.	1834	10	400000000	90000	10	10	1	0.10	.	.	0	1	6480
1597	DLLG21	092	177	41	.230.88	091.45	176.73	1897	10	400000000	21002	10	10	3	0.60	.	.	0	1	7530
1598	DLLG21	092	177	41	.230.88	091.45	176.73	1897	10	400000000	61001	12	13	2	0.10	.	.	0	1	7540
1599	DLLG21	092	177	41	.230.88	091.45	176.73	1897	10	400000000	61001	14	12	4	0.30	.	.	0	1	7550
1600	DLLG21	092	177	41	.230.88	091.45	176.73	1897	10	400000000	61001	19	10	1	0.40	.	.	0	1	7560
1601	DLLG21	092	177	40	.	.	.	1886	10	400000000	11058	10	10	3	0.10	.	.	0	1	7840
1602	DLLG21	092	177	40	.	.	.	1886	10	400000000	12013	10	10	4	.	.	.	0	1	7850
1603	DLLG21	092	177	40	.	.	.	1886	10	400000000	90000	10	10	12	0.80	.	.	0	1	7970
1604	DLLG21	092	177	49	.230.48	.	.	7126	10	400000000	11044	1	.	1	0.10	.	.	0	1	7980
1605	DLLG21	092	177	49	.230.48	.	.	7126	10	400000000	90000	10	10	11	0.40	.	.	0	1	7990
1606	DLLG21	092	177	49	.230.48	.	.	7126	10	400000000	11055	1	.	1	0.10	.	.	0	1	8000
1607	DLLG21	092	177	49	.230.48	.	.	7126	10	400000000	11052	1	.	1	0.10	.	.	0	1	8020
1608	DLLG21	092	177	49	.230.48	.	.	7126	10	400000000	11050	1	.	1	0.10	.	.	0	1	8030
1609	DLLG21	092	177	49	.230.48	.	.	7126	10	400000000	21507	1	.	1	0.10	.	.	0	1	8040
1610	DLLG21	092	177	48	.230.52	091.28	176.47	6466	10	400000000	11049	1	.	2	0.70	.	.	0	1	8230
1611	DLLG21	092	177	48	.230.52	091.28	176.47	6466	10	400000000	11052	1	.	2	0.20	.	.	0	1	8240
1612	DLLG21	092	177	48	.230.52	091.28	176.47	6466	10	400000000	11012	1	.	2	0.60	.	.	0	1	8250
1613	DLLG21	092	177	48	.230.52	091.28	176.47	6466	10	400000000	11041	1	.	1	0.10	.	.	0	1	8260
1614	DLLG21	092	177	48	.230.52	091.28	176.47	6466	10	400000000	90000	10	10	8	0.80	.	.	0	1	8270
1615	DLLG21	092	177	41	.230.85	091.24	176.88	2373	10	400000000	21500	1	.	5	8.10	.	.	0	1	8610
1616	DLLG21	092	177	41	.230.85	091.24	176.88	2373	10	400000000	61001	10	10	3	2.00	.	.	0	1	8620
1617	DLLG21	092	177	56	.230.15	091.85	176.30	7173	10	400000000	90000	10	10	22	0.10	.	.	0	1	9570

OBS	SITE	UNIT	ENVIRONMENT	SECTOR	SPROV	WPROV	CALS	TAXON	ANGL	PORTG	QUANT	WEIGHT	SFEET	FRUIT	BUOET	BORACK	FOHRK	ONENUM		
1618	DLLG21	092	177	55	230.20	091.85	176.30	8001	10	400000000	22000	10	10	4	0.05			0	1	9690
1619	DLLG21	093	174	39	18 230.96	092.94	173.32	7113	10	400000000	21506	0	10	11	3.80			0	0	4360
1620	DLLG21	093	174	35	18 231.15	092.96	173.93	6478	10	400000000	61006	1	0	2	0.05			0	0	5430
1621	DLLG21	093	174	35	18 231.15	092.96	173.93	6478	10	400000000	21500	1	0	3	1.30			0	0	5440
1622	DLLG21	093	174	35	18 231.15	092.96	173.93	6478	10	400000000	21002	1	0	2	0.20			0	0	5450
1623	DLLG21	093	174	35	18 231.15	092.96	173.93	6478	10	400000000	11058	1	0	7	0.80			0	0	5460
1624	DLLG21	093	174	35	18 231.15	092.96	173.93	6478	10	400000000	61001	10	10	7	0.20			0	0	5470
1625	DLLG21	093	174	35	18 231.15	092.96	173.93	6478	10	400000000	90000	10	10	4	1.00			0	0	5480
1626	DLLG21	093	174	36	231.13	092.94	173.90	6480	10	400000000	22000	1	0	5	0.20			0	0	6770
1627	DLLG21	093	174	36	231.13	092.94	173.90	6480	10	400000000	61001	1	0	8	0.30			0	0	6780
1628	DLLG21	093	174	36	231.13	092.94	173.90	6480	10	400000000	90000	1	0	1	0.05			0	0	6790
1629	DLLG21	093	174	36	231.13	092.94	173.90	6480	10	400000000	21507	1	0	1	0.10			0	0	6800
1630	DLLG21	093	174	38	18			6643	10	400000000	22000	10	10	4	0.20			0	1	4330
1631	DLLG21	093	174	40	18			6670	10	400000000	21002	19		1	0.10			0	1	4370
1632	DLLG21	093	174	40	18			6670	10	400000000	21506	19		2	0.20			0	1	4380
1633	DLLG21	093	174	40	18			6670	10	400000000	22000	10	10	6	0.10			0	1	4390
1634	DLLG21	093	174	40	18			6670	10	400000000	90000	10	10	1	0.10			0	1	4400
1635	DLLG21	093	174	41	5			6578	10	400000000	21506	1		1	0.20			0	1	4570
1636	DLLG21	093	174	39	18 230.96	092.81	173.68	7111	10	400000000	90000	10	10	5	0.30			0	1	5110
1637	DLLG21	093	174	39	18 230.96	092.81	173.68	7111	10	400000000	61001	12		29	2.00			0	1	5120
1638	DLLG21	093	174	39	18 230.96	092.81	173.68	7111	10	400000000	61100	12		1	0.10			0	1	5130
1639	DLLG21	093	174	39	18 230.96	092.81	173.68	7111	10	400000000	21500	1		5	2.00			0	1	5140
1640	DLLG21	093	174	39	18 230.96	092.81	173.68	7111	10	400000000	21504	1		3	0.90			0	1	5150
1641	DLLG21	093	174	39	18 230.96	092.81	173.68	7111	10	400000000	21506	1		2	0.50			0	1	5160
1642	DLLG21	093	174	39	18 230.96	092.94	173.32	7113	10	400000000	90000	10	10	3	0.10			0	1	5170
1643	DLLG21	093	174	39	18 230.96	092.94	173.32	7113	10	400000000	61001	12		14	1.00			0	1	5180
1644	DLLG21	093	174	39	18 230.96	092.94	173.32	7113	10	400000000	61100	1		1	0.05			0	1	5190
1645	DLLG21	093	174	39	18 230.96	092.94	173.32	7113	10	400000000	61001	12		13	1.10			0	1	5200
1646	DLLG21	093	174	39	18 230.96	092.94	173.32	7113	10	400000000	21507	12	10	2	0.10			0	1	8280
1647	DLLG21	093	174	39	18 230.96	092.94	173.32	7113	10	400000000	90000	10	10	6	1.00			0	1	8290
1648	DLLG21	093	174	39	18 230.96	092.81	173.68	7111	10	400000000	90000	10	10	1	0.10			0	1	8450
1649	DLLG21	093	177					6699	10	400000000	90000	10	10	3	0.20			0	0	3810
1650	DLLG21	093	177					6698	10	400000000	21500	1	0	3	0.80			0	0	4290
1651	DLLG21	093	177					6698	10	400000000	21504	1	0	3	0.60			0	0	4300
1652	DLLG21	093	177					6698	10	400000000	21506	1	0	5	1.00			0	0	4310
1653	DLLG21	093	177					6698	10	400000000	21002	1	0	13	1.30			0	0	4320
1654	DLLG21	093	177					6698	10	400000000	21507	1	0	1	0.10			0	0	4330
1655	DLLG21	093	177	17				6714	10	400000000	61001	10	10	2	0.05			0	0	4340
1656	DLLG21	093	177	18	230.56	092.03	175.95	6498	10	400000000	21500	1	0	1	0.05			0	0	6160
1657	DLLG21	093	177	18	230.56	092.03	175.95	6498	10	400000000	21225	1	0	1	0.05			0	0	6170
1658	DLLG21	093	177	18	230.56	092.03	175.95	6498	10	400000000	61001	10	10	9	0.05			0	0	6180
1659	DLLG21	093	177	22	230.11			5620	10	400000000	90000	10	10	1	0.05			0	0	6750
1660	DLLG21	093	177	18	230.53			7164	10	400000000	21500	1	0	1	1.00			0	0	7270
1661	DLLG21	093	177	18	230.53			7164	10	400000000	22000	1	0	1	0.20			0	0	7280
1662	DLLG21	093	177	34				6958	10	400000000	22000	1	0	2	0.10			0	0	7480
1663	DLLG21	093	177	22	230.11	092.79	175.99	6454	10	400000000	61006	1	0	3	0.10			0	0	9160
1664	DLLG21	093	177	16				3567	10	400000000	61001	10	10	7	0.20			0	1	80
1665	DLLG21	093	177					2921	10	400000000	61006	10	10	3	0.05			0	1	1330
1666	DLLG21	093	177	13	230.89			2921	10	400000000	90000	10	10	1	0.10			0	1	1340

OBS	SITE	NUNIT	ELEMENT	STRT	SPROV	WPROV	CATS	TAXON	ANGL	PORT	REG	QUANT	WEIGHT	SFEE	FRU	BUO	BBR	BFT	FOT	HR	EX	BONE
1667	DLG21	093	177	16	. 230.63		3566	10 400000000	90000	10	10	3	0.20						0	1	1520	
1668	DLG21	093	177	16	. 230.73		2904	10 400000000	22000	13	10	1	0.01						0	1	1620	
1669	DLG21	093	177	19	. .		2203	10 400000000	22000	1		1	0.10						0	1	3360	
1670	DLG21	093	177	19	. 230.47	092.50	176.75	2209	10 400000000	11057	1	1	0.10						0	1	3480	
1671	DLG21	093	177	11	. 231.20	092.88	176.62	1938	10 400000000	21500	1	1	1.10						0	1	3700	
1672	DLG21	093	177	11	. 231.20	092.88	176.62	1938	10 400000000	21504	19	10	6	3.80					0	1	3710	
1673	DLG21	093	177	11	. 231.20	092.88	176.62	1938	10 400000000	21507	10	10	6	2.60					0	1	3720	
1674	DLG21	093	177	11	. 231.20	092.88	176.62	1938	10 400000000	90000	10	10	5	0.10					0	1	3730	
1675	DLG21	093	177	17	. 230.63		6639	10 400000000	90000	10	10	3	0.20						0	1	4210	
1676	DLG21	093	177	17	. 230.63		6639	10 400000000	22000	10	10	3	0.10						0	1	4220	
1677	DLG21	093	177	. 12	. .	092.74	176.64	6588	10 400000000	21500	1	1	0.10						0	1	4280	
1678	DLG21	093	177	23	. .		6432	10 400000000	21225	1		1	0.10						0	1	5570	
1679	DLG21	093	177	23	. .		6432	10 400000000	21002	18		1	0.10						0	1	5580	
1680	DLG21	093	177	12	. .		6775	10 400000000	21002	19		3	0.50						0	1	5900	
1681	DLG21	093	177	12	. .		6775	10 400000000	21504	19		4	0.70						0	1	5910	
1682	DLG21	093	177	12	. .		6775	10 400000000	11058	1		3	0.10						0	1	5920	
1683	DLG21	093	177	. 12	. .		6699	10 400000000	11049	10	10	1	0.10						0	1	6610	
1684	DLG21	093	177	. 12	. .		6775	10 400000000	31060	19		1	0.10						0	1	7770	
1685	DLG21	093	177	. 12	. .		6775	10 400000000	11012	1		1	0.20	1					0	1	7790	
1686	DLG21	093	177	. 12	. .		6775	10 400000000	11051	1		1	0.10						0	1	7800	
1687	DLG21	093	177	20	. .		7064	10 400000000	61006	10	10	1	0.10						0	1	8110	
1688	DLG21	093	177	20	. .		7064	10 400000000	90000	10	10	5	0.10						0	1	8120	
1689	DLG21	093	177	18	. 230.53		7164	10 400000000	90000	10	10	1	0.10						0	1	8500	
1690	DLG21	093	177	19	. 230.47	092.50	176.72	2209	10 400000000	90000	1	1	0.10						0	1	8570	
1691	DLG21	093	177	13	. 231.18	092.47	175.25	1385	10 400000000	22000	1	0	1	0.08					0	2	90	
1692	DLG21	094	174	39	18 230.97	093.84	173.86	6489	10 400000000	21225	1	0	3	1.20					0	0	5880	
1693	DLG21	094	174	39	18 230.97	093.84	173.86	6489	10 400000000	21500	1	0	4	1.00					0	0	5890	
1694	DLG21	094	174	39	18 230.97	093.84	173.86	6489	10 400000000	21002	1	0	3	0.90					0	0	5900	
1695	DLG21	094	174	39	18 230.97	093.84	173.86	6489	10 400000000	90000	10	10	8	1.00					0	0	5910	
1696	DLG21	094	174	39	18 230.97	093.84	173.86	6489	10 400000000	61006	1	0	8	0.10					0	0	5920	
1697	DLG21	094	174	38	18 231.03	093.31	173.12	3249	10 400000000	61001	1	0	2	0.10					0	0	9790	
1698	DLG21	094	174	34	4 231.22	093.53	173.82	2612	10 400000000	11012	1		2	0.50					0	1	1160	
1699	DLG21	094	174	34	4 231.22	093.53	173.82	2612	10 400000000	90000	10	10	27	1.70					0	1	1210	
1700	DLG21	094	174	38	4 231.03	093.43	173.92	3250	10 400000000	21500	19	10	1	0.10					0	1	1240	
1701	DLG21	094	174	38	4 231.03	093.43	173.92	3250	10 400000000	90000	10	10	22	0.80					0	1	1250	
1702	DLG21	094	174	38	4 231.03	093.43	173.92	3250	10 400000000	22000	12		12	0.90					0	1	1260	
1703	DLG21	094	174	35	4 231.19	093.51	173.62	2620	10 400000000	21225	19	11	1	0.20					0	1	1280	
1704	DLG21	094	174	35	4 231.19	093.51	173.62	2620	10 400000000	61001	12	10	6	0.10					0	1	1290	
1705	DLG21	094	174	35	4 231.19	093.51	173.62	2620	10 400000000	61001	10	10	7	0.20					0	1	1300	
1706	DLG21	094	174	35	4 231.19	093.51	173.62	2620	10 400000000	61006	10	10	19	0.10					0	1	1310	
1707	DLG21	094	174	38	18 231.02	093.64	173.31	3251	10 400000000	22000	10	10	4	0.20					0	1	2500	
1708	DLG21	094	174	38	18 231.02	093.64	173.31	3251	10 400000000	21507	11	10	2	0.10					0	1	2510	
1709	DLG21	094	174	38	18 231.02	093.64	173.31	3251	10 400000000	21225	19	10	4	0.80					0	1	2520	
1710	DLG21	094	174	38	18 231.02	093.64	173.31	3251	10 400000000	21500	19	10	2	0.20					0	1	2530	
1711	DLG21	094	174	40	. 230.92	093.63	173.24	7114	10 400000000	21225	1		1	0.20					0	1	4930	
1712	DLG21	094	174	40	. 230.92	093.63	173.24	7114	10 400000000	21504	1		1	0.10					0	1	4940	
1713	DLG21	094	174	40	. 230.92	093.63	173.24	7114	10 400000000	21500	1		3	0.80					0	1	4950	
1714	DLG21	094	174	40	. 230.92	093.63	173.24	7114	10 400000000	90000	10	10	3	0.10					0	1	4990	
1715	DLG21	094	174	40	. 230.92	093.63	173.24	7114	10 400000000	61001	10	10	5	0.80					0	1	5000	

OBS	SITE	UNNT	ENVL	STRD	SPROV	WPROV	CATS	CLS	TAXON	ANL	POSTG	QUANT	WEIGHT	SFRUIT	FRUIT	BULB	FLOR	OTHER	BONUM
1765	DLLG21	096	174	32	8	231.31	095.55	173.60	7112	10	400000000	61100	1 0	1 0.10	.	.	.	0 0	4350
1766	DLLG21	096	174	32	.	231.32	095.56	173.53	7118	10	400000000	90000	10 10	1 0.10	.	.	.	0 0	7420
1767	DLLG21	096	174	28	3	231.53	.	.	6657	10	400000000	90000	10 10	1 0.10	.	.	.	0 1	4440
1768	DLLG21	096	174	28	3	231.53	.	.	6657	10	400000000	61001	13 10	1 0.10	.	.	.	0 1	4450
1769	DLLG21	096	174	32	.	231.32	095.56	173.53	7118	10	400000000	21225	1 .	1 0.20	.	.	.	0 1	4900
1770	DLLG21	096	174	32	.	231.32	095.56	173.53	7118	10	400000000	90000	10 10	2 0.05	.	.	.	0 1	4910
1771	DLLG21	096	174	32	.	231.32	095.56	173.53	7118	10	400000000	61001	10 10	2 0.10	.	.	.	0 1	4920
1772	DLLG21	096	174	32	8	231.31	095.55	173.60	7112	10	400000000	21225	19 .	3 1.00	.	.	.	0 1	5020
1773	DLLG21	096	174	32	8	231.31	095.55	173.60	7112	10	400000000	21504	10 .	1 0.10	.	.	.	0 1	5030
1774	DLLG21	096	174	32	8	231.31	095.55	173.60	7112	10	400000000	61001	10 10	14 0.80	.	.	.	0 1	5040
1775	DLLG21	096	174	32	8	231.31	095.55	173.60	7112	10	400000000	90000	10 10	2 0.10	.	.	.	0 1	5050
1776	DLLG21	096	174	32	8	231.31	095.55	173.60	7112	10	400000000	22000	12 .	1 0.10	.	.	.	0 1	5090
1777	DLLG21	096	174	32	8	231.31	095.55	173.60	7112	10	400000000	90000	10 10	2 0.10	.	.	.	0 1	5100
1778	DLLG21	096	174	31	.	231.38	.	.	7080	10	400000000	21225	1 .	6 2.80	.	.	.	0 1	6430
1779	DLLG21	096	174	31	.	231.38	.	.	7080	10	400000000	21500	1 .	1 0.30	.	.	.	0 1	6440
1780	DLLG21	096	174	31	.	231.38	.	.	7080	10	400000000	90000	10 10	1 0.10	.	.	.	0 1	6450
1781	DLLG21	096	174	32	18	.	.	.	7069	10	400000000	21225	1 .	5 1.90	.	.	.	0 1	8130
1782	DLLG21	096	174	32	18	.	.	.	7069	10	400000000	21002	19 .	1 0.10	.	.	.	0 1	8140
1783	DLLG21	096	174	32	18	.	.	.	7069	10	400000000	21225	19 10	9 2.50	.	.	.	0 1	8150
1784	DLLG21	096	174	32	18	.	.	.	7069	10	400000000	21504	19 10	4 0.50	.	.	.	0 1	8160
1785	DLLG21	096	174	32	18	.	.	.	7069	10	400000000	21101	1 .	1 0.10	.	.	.	0 1	8170
1786	DLLG21	096	174	32	18	231.31	095.55	173.60	7112	10	400000000	11058	1 .	2 0.10	.	.	.	0 1	8360
1787	DLLG21	096	174	32	18	231.31	095.55	173.60	7112	10	400000000	12013	1 .	2 0.10	.	.	.	0 1	8370
1788	DLLG21	096	174	32	18	231.31	095.55	173.60	7112	10	400000000	11063	1 .	1 0.10	.	.	.	0 1	8380
1789	DLLG21	096	174	32	18	231.31	095.55	173.60	7112	10	400000000	11057	1 .	1 0.10	.	.	.	0 1	8390
1790	DLLG21	096	174	35	.	231.20	094.10	173.63	7006	10	400000000	21002	1 0	1 0.20	.	.	.	0 1	9970
1791	DLLG21	096	174	35	.	231.20	094.10	173.63	7006	10	400000000	90000	10 10	1 0.01	.	.	.	0 2	40
1792	DLLG21	096	174	35	.	231.20	094.10	173.30	7006	10	400000000	90800	1 0	1 0.10	.	.	.	0 2	120
1793	DLLG21	096	174	35	.	231.20	094.10	173.30	7006	10	400000000	21000	1 0	1 0.20	.	.	.	0 2	130
1794	DLLG21	092	177	49	.	230.47	.	.	7126	10	403010300	12005	1 0	1 0.05	2 .	.	.	0 0	6350
1795	DLLG21	092	177	40	.	.	.	.	1886	10	403010300	11052	1 .	2 0.10	.	.	.	0 1	7890
1796	DLLG21	092	177	40	.	.	.	.	1886	10	403010300	11049	1 .	1 0.20	2 .	.	.	0 1	7900
1797	DLLG21	092	177	40	.	.	.	.	1886	10	403010300	11049	1 .	1 0.20	1 .	.	.	0 1	7910
1798	DLLG21	092	177	40	.	.	.	.	1886	10	403010300	11050	1 .	1 0.10	.	.	.	0 1	7920
1799	DLLG21	092	177	40	.	.	.	.	1886	10	403010300	31070	1 .	1 0.10	.	.	.	0 1	7930
1800	DLLG21	092	177	40	.	.	.	.	1886	10	403010300	11027	24 .	1 0.10	.	.	.	0 1	7940
1801	DLLG21	093	174	39	18	230.96	092.94	173.32	7113	10	403010300	21225	10 .	1 0.10	.	.	.	0 1	5210
1802	DLLG21	093	174	39	18	230.96	092.94	173.32	7113	10	403010300	21500	.	4 1.20	.	.	.	0 1	5220
1803	DLLG21	093	174	39	18	230.96	092.94	173.32	7113	10	403010300	21506	.	7 2.10	.	.	.	0 1	5230
1804	DLLG21	093	177	. 12	.	.	.	.	6775	10	403010300	11012	1 .	1 0.10	1 .	.	.	0 1	7750
1805	DLLG21	093	177	. 12	.	.	.	.	6775	10	403010300	11051	1 .	1 0.10	.	.	.	0 1	7760
1806	DLLG21	096	174	31	.	231.35	095.12	173.83	6468	10	403010300	31060	1 0	1 1.10	.	.	.	0 0	4900
1807	DLLG21	096	174	32	18	.	.	.	7069	10	403010300	31010	1 .	1 0.10	.	.	.	0 1	8190
1808	DLLG21	096	174	32	18	.	.	.	7069	10	403010300	11050	1 .	1 0.10	.	.	.	0 1	8200
1809	DLLG21	096	174	32	18	.	.	.	7069	10	403010300	11049	1 .	1 0.50	.	.	.	0 1	8210
1810	DLLG21	096	174	32	18	.	.	.	7069	10	403010300	11052	1 .	2 0.20	.	.	.	0 1	8220
1811	DLLG21	092	177	49	.	230.47	.	.	7126	10	403010301	11049	1 0	1 0.20	1 .	.	.	0 0	6330
1812	DLLG21	092	177	49	.	230.47	.	.	7126	10	403010301	11049	1 0	1 0.20	2 .	.	.	0 0	6340
1813	DLLG21	093	174	36	.	231.13	092.94	173.90	6480	10	403010301	31060	1 0	1 0.80	.	.	.	0 0	6760

OBS	SITE	NUNIT	EVENT	SECTOR	SPROV	WPROV	CALS	TAXON	ANL	PORT	QUANTITY	WEIGHT	SFDR	FRUU	BCRRT	VBOR	BBRACK	FOET	ULTR	HRER	NUM		
1814	DLG21	096	174	28	3			6657	10	403010301	31060	1	1	1.10						0	1	4410	
1815	DLG21	096	174	28	3			6657	10	403010301	31060	10	10	1	0.80	2					0	1	4420
1816	DLG21	096	174	28	3			6657	10	403010301	12006	1		1	0.10	2					0	1	4430
1817	DLG21	096	174	32	8			7112	10	403010301	31060	10	10	1	0.20						0	1	5060
1818	DLG21	096	174	32	8			7112	10	403010301	11050	1		1	0.10	1					0	1	5070
1819	DLG21	091	177	41	18			6490	10	403010304	31060	1	0	1	0.80	2					0	0	5740
1820	DLG21	091	177	41	18			6490	10	403010304	11049	1	0	1	0.60	2					0	0	5750
1821	DLG21	091	177	41	18			6490	10	403010304	11063	1	0	1	0.10						0	0	5760
1822	DLG21	092	177	48	12			6466	10	403010304	11050	1	0	1	0.15	1					0	0	6190
1823	DLG21	092	177	48	12			6466	10	403010304	11050	19	0	1	0.05	2					0	0	6200
1824	DLG21	092	177	48	12			6466	10	403010304	11055	1	0	1	0.05						0	0	6210
1825	DLG21	092	177	48	12			6466	10	403010304	11027	1	0	1	0.20						0	0	6220
1826	DLG21	092	177	48	12			6466	10	403010304	12006	1	0	1	0.10						0	0	6230
1827	DLG21	092	177	40				1886	10	403010304	11012	1		1	0.20	2					0	1	7860
1828	DLG21	092	177	40				1886	10	403010304	31060	24		1	0.20						0	1	7870
1829	DLG21	092	177	40				1886	10	403010304	11057	1		1	0.10						0	1	7880
1830	DLG21	092	177	40				1886	10	403010304	11041	1		2	0.30						0	1	7960
1831	DLG21	093	174	35	18			6478	10	403010304	31060	24	0	1	0.60	1					0	0	5490
1832	DLG21	093	174	39	18			7111	10	403010304	32030	1		1	0.50						0	1	8440
1833	DILG21	093	177	.12				6699	10	403010304	11050	1	0	1	0.20						0	0	3800
1834	DILG21	093	177	.12				6775	10	403010304	11049	1	0	1	0.50						0	0	4180
1835	DILG21	093	177	.12				6699	10	403010304	11049	1	0	1	0.30						0	0	4250
1836	DILG21	093	177	.12				6699	10	403010304	11041	1	0	1	0.20						0	0	4260
1837	DILG21	093	177	.12				6699	10	403010304	11049	1	0	1	0.20						0	0	4270
1838	DLG21	093	177	.12				6699	10	403010304	11050	10	10	2	0.30						0	1	6590
1839	DLG21	093	177	18				7164	10	403010304	32030	24		1	0.20						0	1	8480
1840	DLG21	094	174	39	18			6463	10	403010304	32030	1		1	0.30						0	1	8430
1841	DLG21	094	174	35	18			2802	10	403010304	32030	24		1	0.30						0	1	8470
1842	DLG21	094	175	35	18			6467	10	403010304	31060	1	0	2	1.40						0	0	6600
1843	DLG21	094	175	34	18			6500	10	403010304	32030	1		2	1.10						0	1	8400
1844	DLG21	096	174	32				7109	10	403010304	31060	10	10	1	0.80						0	1	4880
1845	DLG21	096	174	35				7006	10	403020100	31060	1	0	1	0.20						0	2	110
1846	DLG21	091	177	42				3788	10	403020101	31060	1	0	1	0.10	1					0	0	1860
1847	DLG21	092	177	49				7126	10	403020101	31060	1	0	3	0.20						0	0	6300
1848	DLG21	092	177	49				7126	10	403020101	11049	1	0	1	0.05						0	0	6310
1849	DLG21	092	177	49				7126	10	403020101	11050	1	0	1	0.10						0	0	6320
1850	DLG21	092	177	49				7126	10	403020101	11041	1	0	3	0.05						0	0	6360
1851	DLG21	092	177	41				2162	10	403020101	11050	10	10	1	0.10						0	1	2870
1852	DLG21	092	177	41	6			2573	10	403020101	11003	1		1	0.10	1					0	1	4090
1853	DLG21	092	177	49				7126	10	403020101	11007	1		1	0.10						0	1	8010
1854	DLG21	092	177	12				6755	10	403020101	11050	1		1	0.20						0	1	8060
1855	DLG21	093	177					7060	10	403020101	31060	1	0	1	0.20						0	0	3660
1856	DLG21	093	177	22	12			6454	10	403020101	11050	1	0	1	0.30						0	0	4850
1857	DLG21	093	177					1978	10	403020101	21225	1		1	0.10						0	1	3000
1858	DLG21	093	177	17				2917	10	403020101	31060	1		1	0.20						0	1	3230
1859	DLG21	093	177	19				2209	10	403020101	11049	1		1	0.10						0	1	5450
1860	DLG21	093	177	.12				6699	10	403020101	11050	1		1	0.20						0	1	6600
1861	DLG21	093	177	.12				6775	10	403020101	11050	1		1	0.20	2					0	1	7780
1862	DLG21	093	177	20				7064	10	403020101	11049	1		2	0.20						0	1	8080

OBS	SITE	NUMBER	ELEV	SURT	D	SPROV	WPROV	CAL	CL	TAXON	ANL	PORT	QSENT	WEIGHT	IS	FRUIT	EPRR	JUV	VCR	BUL	FF	FO	ON	EN	M
1863	DLLG21	093	177	20	.	.	.	7064	10	403020101	11063	10	10	1	0.10	.	.	.	.	.	.	.	0	1	8090
1864	DLLG21	093	177	20	.	.	.	7064	10	403020101	11050	1	.	1	0.20	.	.	.	.	.	.	.	0	1	8100
1865	DLLG21	094	174	40	.	230.92	093.63	173.24	7114	10	403020101	11050	1	.	1	0.40	.	.	.	.	.	.	0	1	4970
1866	DLLG21	094	174	40	.	230.92	093.63	173.24	7114	10	403020101	11063	1	.	1	0.10	.	.	.	.	.	.	0	1	4980
1867	DLLG21	094	174	40	.	230.92	093.63	173.24	7114	10	403020101	11049	1	.	2	0.30	.	.	.	.	.	.	0	1	5530
1868	DLLG21	094	175	38	18	231.02	093.38	174.07	6499	10	403020101	31060	1	.	1	0.10	.	.	.	.	.	.	0	1	5490
1869	DLLG21	094	175	34	18	231.20	093.52	174.05	6500	10	403020101	31060	19	.	1	0.10	.	.	.	.	.	.	0	1	8410
1870	DLLG21	096	174	19	.	1.81	095.50	173.72	2209	10	403020101	11050	1	.	1	0.10	.	.	.	.	.	.	0	1	5010
1871	DLLG21	096	174	32	8	231.31	095.55	173.60	7112	10	403020101	31060	1	.	1	0.20	.	.	.	.	.	.	0	1	5080
1872		999	999	.	6	.	.	.	6448	10	403020101	11004	1	0	1	0.05	.	.	.	.	.	.	0	0	5030
1873		999	999	.	6	.	.	.	6448	10	403020101	11050	1	0	1	0.20	.	.	.	.	.	.	0	0	5040
1874		999	999	.	6	.	.	.	6448	10	403020101	12006	1	0	1	0.05	.	.	.	.	.	.	0	0	5050
1875		999	999	.	6	.	.	.	6448	10	403020101	11044	1	0	1	0.10	.	.	.	.	.	.	0	0	5060
1876		999	999	.	6	.	.	.	6448	10	403020101	11007	1	0	1	0.10	.	.	.	.	.	.	0	0	5070
1877		999	999	.	6	.	.	.	6448	10	403020101	11041	1	0	1	0.10	.	.	.	.	.	.	0	0	5080
1878	DLLG21	093	177	22	.	230.11	.	.	5620	10	404010201	21500	1	0	3	1.00	.	.	.	.	.	.	0	0	6730
1879	DLLG21	093	177		11	231.20	092.88	176.62	1938	10	404010201	21509	19	.	1	1.10	.	.	.	.	.	.	0	1	7820
1880	DLLG21	093	174	38	18	.	.	.	6643	10	404020000	31060	19	10	1	1.00	.	.	.	.	.	.	0	1	4320
1881	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020200	11058	1	.	3	0.10	.	.	.	.	.	.	0	1	3520
1882	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020200	11056	1	.	1	0.10	.	.	.	.	.	.	0	1	5460
1883	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020200	11051	1	.	1	0.10	.	.	.	.	.	.	0	1	5480
1884	DLLG21	093	177	19	.	.	.	.	2203	10	404020201	11049	1	.	1	1.40	1	.	.	.	.	.	0	1	3330
1885	DLLG21	093	177	19	.	.	.	.	2203	10	404020201	11058	1	.	2	0.20	.	.	.	.	.	.	0	1	3350
1886	DLLG21	093	177	19	.	.	.	.	2203	10	404020201	11010	1	.	1	0.70	.	.	.	.	.	.	0	1	3380
1887	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020201	11049	1	.	1	1.20	1	.	.	.	.	.	0	1	3400
1888	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020201	11052	1	.	1	0.20	2	.	.	.	.	.	0	1	3430
1889	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020201	11050	1	.	1	0.20	2	.	.	.	.	.	0	1	3440
1890	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020201	11033	1	.	1	1.30	2	.	.	.	.	.	0	1	3500
1891	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020201	11033	1	.	2	0.80	1	.	.	.	.	.	0	1	3510
1892	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020201	11068	1	.	1	0.30	2	.	.	.	.	.	0	1	3580
1893	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020201	11034	1	.	1	0.10	.	.	.	.	.	.	0	1	3590
1894	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020201	11035	1	.	1	0.10	1	.	.	.	.	.	0	1	3630
1895	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020201	11035	1	.	1	0.20	2	.	.	.	.	.	0	1	3640
1896	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020201	11069	1	.	1	0.80	1	.	.	.	.	.	0	1	3650
1897	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020201	11007	1	.	1	0.10	.	.	.	.	.	.	0	1	3660
1898	DLLG21	093	177	19	.	.	.	.	2203	10	404020202	11050	1	.	1	0.30	2	.	.	.	.	.	0	1	3320
1899	DLLG21	093	177	19	.	.	.	.	2203	10	404020202	11051	1	.	1	0.50	1	.	.	.	.	.	0	1	3340
1900	DLLG21	093	177	19	.	.	.	.	2203	10	404020202	11010	1	.	1	0.80	.	.	.	.	.	.	0	1	3370
1901	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020202	11049	1	.	2	2.80	2	.	.	.	.	.	0	1	3390
1902	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020202	11052	1	.	1	0.20	1	.	.	.	.	.	0	1	3410
1903	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020202	11052	1	.	1	0.20	2	.	.	.	.	.	0	1	3420
1904	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020202	11050	1	.	1	30.00	1	.	.	.	.	.	0	1	3450
1905	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020202	11041	1	.	1	0.50	1	.	.	.	.	.	0	1	3460
1906	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020202	11041	1	.	1	0.50	2	.	.	.	.	.	0	1	3470
1907	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020202	11064	1	.	1	2.00	1	.	.	.	.	.	0	1	3490
1908	DLLG21	093	177	19	.	230.47	092.50	176.75	2209	10	404020202	11051	1	.	2	0.90	2	.	.	.	.	.	0	1	3530
1909	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020202	11051	1	.	1	0.20	1	.	.	.	.	.	0	1	3540
1910	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020202	11037	1	.	1	0.20	.	.	.	.	.	.	0	1	3550
1911	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020202	11033	1	.	1	0.10	1	.	.	.	.	.	0	1	3560

OBS	SITE	NUM	ENV	LENT	STABD	SPROV	WPROV	CLS	TAXON	ANL	PORT	QUANT	WEIGHT	SFUE	FRUET	BURR	BUET	FOET	ONUM		
1912	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020202	11033	1	. 1	0.10	2	.	.	.	0 1	3570
1913	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020202	11032	1	. 1	0.30	.	.	.	.	0 1	3600
1914	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020202	11020	1	. 1	0.20	2	.	.	.	0 1	3610
1915	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020202	11046	1	. 1	0.20	.	.	.	.	0 1	3620
1916	DLLG21	093	177	19	.	230.47	092.50	176.72	2209	10	404020202	11051	1	. 1	0.10	.	.	.	.	0 1	5470
1917	DLLG21	093	177	18	.	230.53			7164	10	404020202	11052	1	. 1	0.20	.	.	.	.	0 1	8490
1918	DLLG21	093	177	16	.	230.73			2904	10	404030000	31060	14	10	1	0.01	.	.	.	0 1	1630
1919	DLLG21	093	174	25	.				6716	10	404030100	61100	19	10	1	0.60	.	.	.	0 0	3970
1920	DLLG21	093	177	18	.	230.53			7164	10	404030100	31060	18	0	1	3.40	.	.	.	0 0	7240
1921	DLLG21	061	189	31	16	231.33			2685	10	404030102	61100	12	0	1	1.00	1	.	.	0 0	1120
1922	DLLG21	094	174	34	4	231.22	093.53	173.82	2612	10	404030102	61100	1	. 1	0.10	1	.	.	.	0 1	1140
1923	DLLG21	094	174	34	4	231.22	093.53	173.82	2612	10	404030102	61000	1	. 1	0.10	2	.	.	.	0 1	1150
1924	DLLG21	094	174	34	4	231.22	093.53	173.82	2612	10	404030102	31060	11	10	1	0.30	1	.	.	0 1	1170
1925	DLLG21	094	174	34	4	231.22	093.53	173.82	2612	10	404030102	31060	11	10	1	0.30	2	.	.	0 1	1180
1926	DLLG21	094	174	34	4	231.22	093.53	173.82	2612	10	404030102	31060	16	10	1	0.10	1	.	.	0 1	1190
1927	DLLG21	094	174	34	4	231.22	093.53	173.82	2612	10	404030102	31060	16	10	1	0.10	2	.	.	0 1	1200
1928	DLLG21	094	174	34	4	231.22	093.53	173.82	2612	10	404030102	12006	1	10	1	0.05	1	.	.	0 1	1220
1929	DLLG21	094	174	34	4	231.22	093.53	173.82	2612	10	404030102	12006	1	10	1	0.05	2	.	.	0 1	1230
1930	DLLG21	094	174	34	4	231.22	093.53	173.82	2612	10	404030102	11063	11	10	1	0.10	.	.	.	0 1	1270
1931	DLLG21	094	174	40	.	230.92	093.63	173.24	7114	10	404030102	11070	1	. 1	3.90	.	.	.	.	0 1	4960
1932	DLLG21	061	189	31	16	231.33			2685	10	404030103	11041	17	0	1	1.10	2	.	.	0 0	1170
1933	DLLG21	093	177	13	.				1397	10	404030103	21503	1	0	1	0.10	.	.	.	0 0	1440
1934	DLLG21	194	190	23	2	231.76	193.84	189.79	2117	10	404030103	11041	10	10	2	2.10	2	.	.	0 1	1690
1935	DLLG21	091	177	37	.	231.08	090.60	176.95	3732	10	408010401	23000	10	10	1	0.20	2	.	.	0 1	2420
1936	DLLG21	093	177	17	.	230.63			6639	10	409000000	31060	10	10	1	0.50	.	.	.	0 1	5820
1937	DLLG21	091	177	43	.	231.79	090.10	176.90	7181	10	409020000	11006	19	0	1	0.05	.	.	.	0 1	9480
1938	DLLG21	093	177	18	18	230.53			7066	10	409020000	31060	10	10	2	1.00	.	.	.	0 1	5750
1939	DLLG21	092	177	40	.				1886	10	409020101	11034	1	. 1	0.10	2	.	.	.	0 1	7950
1940	DLLG21	094	174	40	.				6594	10	409020101	31060	24	10	1	0.50	1	.	.	0 1	4360
1941	DLLG21	094	175	35	18	231.15	093.53	174.07	6467	10	409020101	31060	1	0	1	0.90	.	.	.	0 0	6630
1942	DLLG21	094	175	35	18	231.15	093.53	174.07	6467	10	409020101	32030	24	.	1	0.20	.	.	.	0 1	8550
1943	DLLG21	096	174	31	.	231.38			7080	10	409020101	11027	19	.	2	0.30	.	.	.	0 1	6420
1944	DLLG21	091	177	46	.	230.65	090.85	176.30	7037	10	409020200	21225	19	0	8	1.70	.	.	.	0 1	9740
1945	DLLG21	091	177	43	.	230.77			7117	10	409020202	12006	1	0	1	0.50	1	.	.	0 0	5200
1946	DLLG21	091	177	43	.	230.77			7117	10	409020202	12006	1	0	1	0.50	2	.	.	0 0	5210
1947	DLLG21	091	177	43	.	230.77			7117	10	409020202	11041	1	0	1	0.20	2	.	.	0 0	5220
1948	DLLG21	091	177	43	.	230.77			7117	10	409020202	11006	1	0	1	0.10	2	.	.	0 0	5230
1949	DLLG21	091	177	43	.	230.77			7117	10	409020202	11002	1	0	1	0.10	1	.	.	0 0	5240
1950	DLLG21	091	177	43	.	230.77			7117	10	409020202	11002	1	0	1	0.10	2	.	.	0 0	5250
1951	DLLG21	091	177	43	.	230.77			7117	10	409020202	11004	1	0	2	0.70	.	.	.	0 0	5260
1952	DLLG21	091	177	43	.	230.77			7117	10	409020202	11050	1	0	1	0.50	2	.	.	0 0	5270
1953	DLLG21	091	177	43	.	230.77			7117	10	409020202	12004	1	0	1	0.80	1	.	.	0 0	5280
1954	DLLG21	091	177	43	.	230.77			7117	10	409020202	12004	1	0	1	0.80	2	.	.	0 0	5290
1955	DLLG21	091	177	43	.	230.77			7117	10	409020202	11027	1	0	2	0.40	.	.	.	0 0	5300
1956	DLLG21	091	177	43	.	230.77			7117	10	409020202	11012	1	0	1	0.50	2	.	.	0 0	5310
1957	DLLG21	091	177	43	.	230.77			7117	10	409020202	11012	1	0	1	0.50	1	.	.	0 0	5320
1958	DLLG21	091	177	43	.	230.77			7117	10	409020202	11030	1	0	1	0.10	2	.	.	0 0	5330
1959	DLLG21	091	177	43	.	230.77			7117	10	409020202	11051	1	0	1	0.10	.	.	.	0 0	5340
1960	DLLG21	091	177	43	.	230.77			7117	10	409020202	11045	1	0	2	0.20	.	.	.	0 0	5350

OBS	SITE	NUNT	ELN	SVE	TRD	SPROV	WPROV	CAT	AL	TAXON	ANL	PORT	QESAG	WUI	SFR	EUI	JVB	BRR	BCK	FOET	BFA	RHR	FON	ENUM
2010	DLLG21	096	174	31	.	231.38				7080	10	409020202	31060	1	.1	0.7	1	. . . . .		0	1	6400	
2011	DLLG21	096	174	31	.	231.38				7080	10	409020202	12006	1	.1	0.1	. . . . .			0	1	6410	
2012	DLLG21	096	174	32	18	.				7069	10	409020202	11051	1	.1	0.1	. . . . .			0	1	8180	
2013	DLLG21	061	189	31	16	231.33				2685	10	409030101	21500	19	0	1	0.1	. . . . .		0	0	1180	
2014	DLLG21	090	177	41	15	230.80	089.20	176.95		6486	10	409030101	11062	1	0	1	0.9	. . . . .		0	0	6270	
2015	DLLG21	094	174	34	18	231.23	093.86	173.58		2611	10	500000000	0	1	450	
2016	DLLG21	061	188	19	1	231.97				4401	10	700000000	90000	10	10	2	0.1	. . . . .		0	0	620	
2017	DLLG21	061	188	18	1	232.03				4200	10	700000000	90000	10	10	1	0.5	1	0	0	830	
2018	DLLG21	061	192	19	1	231.97				4782	10	700000000	90000	10	10	3	1.0	0	0	230	
2019	DLLG21	061	192	20	1	231.93				4792	10	700000000	90000	10	10	1	0.1	0	1	600	