

4 STUDY METHODS

4.1 Literature Review

This study, as with most significant features inventories, is basically an inventory of the ecological and physical diversity of the Strathcona County landscape; it includes both abiotic and biotic components, both terrestrial and aquatic habitats, and both floral and faunal elements. Due to the broad and diverse nature of features being included, the successful inventory and prioritization of habitats within the County first requires a sound knowledge of the County's wildlife resources and habitat base.

The interpretation of literature records and previous research has long been accepted as a standard procedure in the initial stages of a natural resource inventory (Radford et al. 1981). A variety of publications and research documents are available that describe species, communities, and biotic resources at scales useful for the Prioritized Landscape Ecology Assessment in Strathcona County. While this habitat prioritization project has a fundamentally different scope than Environmentally Significant Areas (ESA) inventories and biophysical inventories, both types of inventories also have inherent qualities which allow the application of selected data therein to habitat inventory projects. Significant or critical wildlife habitats are often the primary features delineated in ESA inventories, for example. Relevant studies which have been referred to during the inventory of habitats in the County are presented in Table 3, others have been referenced in the text to which they are relevant.

**Table 3: OTHER SOURCES OF INFORMATION ON HABITATS
 IN STRATHCONA COUNTY**

Title	Reference
A Survey of Wetland Wildlife Resources in Strathcona County	Griffiths (1987)
Environmentally Sensitive Areas: County of Strathcona and M.D. of Sturgeon	Infotech Services and Associates (1989)
Strathcona County's Land Among the Lakes - An Ecosystem in Transition	Griffiths (1991)
Strathcona County Lakes Management Plan - Planning for the Land Among the Lakes	Strathcona County (1993)
North Saskatchewan River Basin Wetland and Riparian Habitat Overview	Brown (1988)
Cooking Lake Area Study - Fish and Wildlife	Zelt and Glasgow (1975)
Cooking Lake Area Study - Waterfowl and Migratory Birds	Kemper (1976)

A comprehensive review of all the aforementioned documents as well as all available published and unpublished reports and maps from government agencies, university libraries, and private sector sources was conducted. This included literature and data files maintained by Alberta Environmental Protection, such as 1:250,000 scale "Wildlife Key Area" maps.

In addition, this project's terms of reference indicate that the habitat inventory and prioritization is to be based on and improve upon previous guidelines developed for Strathcona County, as described in Griffiths' (1992) *Southeast Watershed Ecosystem Assessment*. The classification used by Griffiths for previous habitat inventory and prioritization in the Lakes Management Plan area was refined and used as a basis for application to the County as a whole. Further detailed descriptions of both Griffiths' methodology as well as the refined version used in this project are presented in section 8.0.

4.2 Interpretation of Aerial Photography

Wildlife habitat units (WHU) were mapped from panchromatic 1:30,000 scale air photos taken in late-spring on May 25 and June 6, 1996. WHU polygons were interpreted using a three-dimensional image visible through a standard stereoscope placed over paired aerial photographs. WHU boundaries were mapped using a Stano 3.5 mm drafting pen and then assigned a code based upon the WHU's selection criteria described in sections 8.0 and 12.0.

The use of aerial photographs taken in late-spring present some limitations to the classification of ephemeral wetlands formed from snow-melt. These wetlands typically do not persist into late-spring, but are available to early-spring migrant waterfowl for resting en route to breeding grounds further north. The late-spring aerial photography is ideal, however, for purposes of classifying permanent wetlands which are the primary locations for waterfowl brood production in Strathcona County.

4.3 Field Verification

The accuracy of Wildlife Habitat Units pre-classified in the aerial photograph analysis phase of this study were verified through several field checks conducted during the fall of 1996. These field checks on September 26 and October 16, 17, and 23 covered the portion of Strathcona County that excludes *The Lakes Management Plan* area. The addition of the *Lakes Management Plan* study area to this study did not occur until December 19, 1996, and thus precluded field verification of WHUs classified in this area. Field observations of waterfowl staging on ponds and lakes were made during the field visits, allowing the verification some pre-classified lake WHUs. Primarily, the ground-truthing field checks allowed WHUs mapped on aerial photographs to be verified, or re-classified.

Extensive field work was conducted by D.E. Griffiths for the *The Survey of Wetland Wildlife Resources of Strathcona County* (1987) which details waterfowl utilization of the larger waterbodies in Strathcona County, and was referred to during the course of this study.

4.4 Digital Map and Database Production

Wildlife Habitat Unit polygons were transferred to Strathcona County parcel map based from aerial photographs using a Vertical Sketchmaster Model 260GE. The WHU polygons were subsequently digitized using Bentley Systems Microstation 95 software resulting in the production of one file in IGDS format. The file in IGDS format was then exported to ARC/INFO GIS software, cleaned and linked to database attributes. Map legends were then incorporated and final map products produced. Coverage files were then created in .E00 format for delivery to Strathcona County.

A file in .DXF format of polygon boundaries and polygon labels was also created for use in 'AUTOCAD' by Strathcona County.

A digital polygon attribute database was created in Microsoft Access to capture map unit codes and aid in final thematic map production and data analysis. The following database fields were created:

- ✎ Polygon number
- ✎ Map Unit code
- ✎ Wildlife Habitat Unit code
- ✎ Priority Wildlife Habitat Unit code
- ✎ Priority Restoration Wildlife Habitat Unit code

Three map products were produced to accompany this report and are enclosed in the attached map pocket. The maps include:

- Map 1 - Categories of Existing Wildlife Habitat Units
- Map 2 - Priority Wildlife Habitat Units
- Map 3 - Priority Restoration Wildlife Habitat Units