

through a levy on the sale of fishing and hunting licenses and tax deductible donations (Alberta Forestry Lands and Wildlife 1989).

The Landowner Habitat Program within “Buck for Wildlife” is designed to encourage ecologically sound agricultural practices, such as rest-rotation grazing, selective hay cutting, and soil conservation strategies, in combination with the preservation of residual wildlife habitat patches within the agricultural matrix. The most recent participant in this program within Strathcona County has signed a 20-year conservation agreement for a wetland named Bretona Pond. This habitat improvement project included construction of fence lines to limit cattle access to the wetland emergent zone (to allow dense-nesting cover to establish adjacent to Bretona Pond) and an interpretive waterfowl viewing area (Alberta Forestry Lands and Wildlife 1994). In addition, placement of nesting bales in Bretona Slough and reforestation of adjacent uplands has been considered (Griffiths 1987), although the current status of these projects is unknown.

The Riparian Habitat Program within “Buck for Wildlife” is intended to protect fish habitat, maintain water quality, and retain forage and shelter for wildlife (Alberta Forestry Lands and Wildlife 1989). The program offers financial incentives to landowners for the retention of habitat.

The Small Wetlands Project is another landowner-based initiative through “Buck for Wildlife”. Landowners are contacted if good quality wetlands for waterfowl are located on their property, and various wetland enhancement opportunities are identified. Placement of rock islands, nest bales, and seeding of upland habitat adjacent to wetlands are the most common methods of wetland enhancement implemented in the Small Wetlands Project.

12 PRIORITY RESTORATION WILDLIFE HABITAT UNITS

Designation of Priority Restoration Wildlife Habitat Units (PRWHU) focuses on those units which have the potential to restore essential ecological function to the landscape. Wildlife habitat units which have the potential to restore connectivity between fragmented wildlife habitat will increase the overall ecological integrity of the landscape (Godron and Forman 1986). Core wildlife habitat units that have been heavily impacted by human activity may be approaching or may have passed an ecological threshold where species diversity decreases. Wildlife habitat units, such as wetland complexes within an agricultural or country residential landscapes may be approaching this threshold. In these cases, habitat restoration would retain wildlife species, which, otherwise would be unable to utilize the degraded habitat units.

Priority restoration wildlife habitat units attempt to retain or enhance existing wildlife populations associated with several vegetation communities. Priority restoration habitat units include upland poplar forest, wetland complexes, lake buffer zones, and drainage courses; all are landscape features where habitat restoration would benefit wildlife populations. Lake buffer zones, for example, are intended primarily to reduce disturbance of breeding waterfowl (Griffiths 1991).

Priority restoration habitat has been mapped where existing land-use likely has a negative impact on wildlife habitat. Landscape elements such as isolated remnant patches, where chronic disturbance associated with the surrounding matrix reduces wildlife species diversity, are ubiquitous in Strathcona County. Restoring links between remnant patches through the active restoration of movement corridors is necessary to avoid what is termed “the relaxation effect”, a process where niche-specific interior species gradually die-out within patches following land-use changes in the surrounding matrix (Godron and Forman 1986). Stream corridors, since they typically contain a variety of habitats, are especially important in the maintenance of wildlife populations. These corridors are more effective in facilitating the movement of upland interior forest patch animals, and in controlling water and nutrient flows, when native vegetation is retained over the entire width of the valley, and is also continuous along the length of the valley.

Water courses have been designated as potential restoration wildlife habitat where they are chronically impacted by land-uses such as cattle grazing, crop production, and residential development, yet still have vestiges of native vegetation remaining around which to restore stream corridor function. Ecologically functioning water courses are essential in order to maintain the water bodies and wetland complexes into which they flow.

Designation of Restoration WHU's includes the concept of several criteria. One of the most crucial to maintaining wildlife populations is the minimum effective buffer width needed to ameliorate disturbance factors such as land-based human use. This value has been reported as being 40 metres by Griffiths (1991). These buffers have been designated Upland Poplar Forest With Restoration Potential (Uaa). In many cases, minimal upland forest has been retained adjacent to wetlands. The fact that waterfowl populations require some degree of seclusion will necessitate the reforestation of sites adjacent to wetlands which are currently under cultivation and grazing land- use to native vegetation cover. Lake buffer zone vegetation should be comprised of aspen woodland and willow shrub.

12.1 Priority Restoration Wildlife Habitat Designation Criteria

The wildlife habitat units deemed suitable for restoration “include blocks and corridors of modified habitat that nevertheless are not so extensively changed that restoration to high quality

wildlife habitat would be impractical” (Griffiths 1991). Wildlife habitat unit types that have been identified for restoration focus on upland - small wetland complexes, potential corridors, drainage courses that flow into lakes, and partly modified marshes, swamps and bogs. A wildlife habitat unit type has been added to each of the wetland and upland wildlife habitat units included in the classification system developed by Griffiths (1991). The Shrub Wetland - Swamp WHU (Wg) has replaced the Large Marsh - Swamp WHU (Wa) designation developed by Griffiths (1991). The marsh wildlife habitat unit has been retained to describe only non-forested shallow wetlands lacking an open water zone. Finally, a wildlife habitat unit for coniferous forest has been added to the existing upland classification system.

Coding of wildlife habitat units with restoration value followed the method used by Griffiths (1991). This consists of simply adding a letter suffix to each wildlife habitat unit code for units where restoration is applicable based upon the above criteria. For example, the Existing Drainage Course WHU (Wf) is normally assigned the restoration designation code (Wff).

Table 16 below summarizes the major criteria used in prioritizing Wildlife Habitat Units with regards to their restoration potential.

Table 16: CRITERIA FOR PRIORITIZING WILDLIFE HABITAT UNITS (WHUs) WITH RESTORATION POTENTIAL

Selection criteria	Priority Restoration Wildlife Habitat Unit		
	Priority 1	Priority 2	Priority 3
Size (hectares)	30 or more	10 - 29.9	1 - 9.9
Buffer Zone	Upland WHU adjacent to existing Priority 1 Wetland and Upland WHU	Between existing Priority 1 WHU and Unclassified Land	Between existing Priority 2 WHU and Unclassified Land
Buffer Zone Width	40 m minimum on Wetland, Lake and Drainage course WHU's 30 m minimum on intermittent drainage courses and Unclassified Land	35 m minimum on Wetland, Lake and Drainage course WHU's 25 m minimum on intermittent drainage courses and Unclassified Land	30 m minimum on Wetland, Lake and Drainage course WHU's 20 m minimum on intermittent drainage courses and Unclassified Land
WHU exempt from habitat size criteria	Wetlands Drainage Course Corridor	Wetlands Drainage Course Corridor	Wetlands Drainage Course Corridor
Percentage WHU impacted	70 - 90	70 - 90	70 - 90
Wildlife Habitat Species Diversity	High	Moderate	Low
Number Wildlife Habitat Types	3 or more	2	1
Restoration Goal	Meet the existing Priority 1 WHU criteria Restore drainage course and corridor to fulfil Priority 1 WHU criteria	Meet the existing Priority 2 WHU criteria Restore drainage course and corridor to fulfil Priority 2 WHU criteria	Meet the existing Priority 3 WHU criteria Restore drainage course and corridor to fulfil Priority 3 WHU criteria

12.2 Distribution of Priority Restoration Wildlife Habitat Units

Priority Restoration Wildlife Habitat Units in Strathcona County are generally associated with upland versus wetland habitat units (Table 17). These restoration WHU are located primarily in the Cooking Lake Upland ecodistrict and are virtually absent from the Leduc Plain ecodistrict, where large scale agricultural clearing of upland forest and drainage of wetlands has been more pronounced than elsewhere in the County. For an illustrated distribution of Priority Restoration WHU see Map 3.

Table 17: AREAL DISTRIBUTION OF RESTORATION WILDLIFE HABITAT UNITS		
Wildlife Habitat Unit	Total Area (ha)	% of Total Area
Ua	11243.6	9.4
Uaa (restoration)	3685.4	3.1
Ub	2144.6	1.8
Ubb (restoration)	76.7	.06
Uc	8216.6	6.9
Ucc (restoration)	615.8	0.5
Ud	424.0	3.5
Udd (restoration)	484.5	0.4
Ue	764.9	0.6
Uee (restoration)	3.2	0.0
Wa	1485.3	1.2
Waa (restoration)	561.8	0.5
Wb	684.1	0.6
Wbb (restoration)	21.2	0.02
Wc	563.8	0.5
Wcc (restoration)	15.0	0.01
Wd	1236.0	1.0
Wdd (restoration)	57.3	0.05
We	1354.0	1.1
Wee (restoration)	22.1	0.02
Wf	2476.0	2.1
Wff (restoration)	951.5	0.08
Wg	2326.0	1.9
Wgg (restoration)	374.8	0.3
La,b,c,e	1559.3	1.3
Lee (restoration)	8.1	0.0
Ld	6072.4	5.1
Ldd (restoration)	0.0	0.0

Of the total area of 6,877.4 ha of Restoration WHUs, 3,750.6 ha (54.4%) were designated as Priority 1 Restoration WHUs, 2,246.3 ha (32.7%) as Priority 2 Restoration WHUs, and 880.5 ha (12.8%) as Priority 3 Restoration WHUs.

12.2.1 Priority 1 Restoration Wildlife Habitat Units

Priority 1 Restoration Wildlife Habitat Units are concentrated in areas with large blocks of existing Priority 1 WHU's such as within the Cooking Lake Upland. In these locations, Restoration WHU have been assigned to lakeshores, wetland borders, and clearings within existing forest blocks. Some Priority 1 Restoration WHU's are located along permanent streams, within agricultural land on the northern fringe of the Leduc Plain Ecodistrict. In these cases, Restoration WHU's function in the linkage of disjunct wildlife habitat patches and as wetland buffers.

12.2.2 Distribution of Priority 2 Restoration Wildlife Habitat Units

Priority 2 Restoration Wildlife Habitat Units are located in the Leduc Plain Ecodistrict where wetlands and stream courses have been disturbed, yet not completely modified. The eolian sand dunes of the Redwater Plain, the hummocky moraine of the Cooking Lake Upland, and the North Saskatchewan River Valley all contain existing wildlife habitat that would be enhanced through the implementation of the restoration wildlife habitats depicted on the attached map.

12.2.3 Priority 3 Restoration Wildlife Habitat Units

Mapping of Priority 3 Restoration Habitats has focused upon drainage courses and small sloughs which have been heavily impacted by agricultural land-uses within the Leduc Plain Ecodistrict. Small sloughs and marshes, and fragmented upland forest located within the mixed agricultural and country residential land-uses so prevalent in The Cooking Lake Upland have also been selected for restoration.