



COMPENSATION FOR DISTURBED WETLANDS – A LEAP OF FAITH?

By Carolyn Campbell, AWA Conservation Specialist

For many of our wildlife species, spring regeneration and rebirth depends on habitat near or in wetland areas. Until recently, wetlands were little appreciated, and in Alberta, many millions of hectares have been altered or drained. Because of the difficult challenges of restoring ecological functions to disturbed wetlands and reconstructing those that have been destroyed, protecting the significant wetlands that remain should be a top priority.

A wetland is land that has water at, near, or above the land surface or that is saturated with water long enough to have wetland or aquatic characteristics. These characteristics include water-influenced soils and vegetation, and biological species, including invertebrates, adapted to a wet environment. Sometimes surface water is evident much of the time, sometimes rarely so.

Wetlands are critical to healthy aquatic ecosystems and to the quantity and quality of our surface and ground waters. The ecological services that wetlands offer include recharging groundwater; reducing flooding, erosion, and sedimentation; filtering metals and nutrients; absorbing and slowly releasing water for drought protection; and providing important habitat for biodiversity.

Historically these benefits were largely ignored, and wetlands were regarded as unproductive land. Government policies encouraged the draining of wetlands. In Alberta's White Area – the agricultural and settled region – an estimated two-thirds of wetland area has been drained or altered over the past 100 years. In the Green Area – the 47 percent of Alberta that is largely non-settled and comprises primarily Boreal Forest and Foothills Natural Regions – the amount of wetland that has been lost is unknown. Only partial inventories exist today, and current plans to complete Green Area wetland mapping will take at



Compensation for wetland impacts in the boreal forest remains unproven and untested.

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least seven years to complete.

There has been a 'no net loss' federal wetlands policy since 1992 but this only applies to federal lands in Alberta and any projects with federal funding. Provincially, the *Water Act* requires Alberta Environment's approval before altering the flow of water or impacting the aquatic environment within a water body, including a wetland. However, a Green Area policy has never been put in place to regulate the protection and conservation of wetlands. Instead, for Green Area industrial projects such as petroleum production, mining, pipelines, and large industrial plants, the *Environmental Protection and Enhancement Act* requires that land disturbed must be restored to an "equivalent land capability." In practice, this has meant a preference for turning wetlands into what is seen as "more productive" forested lands.

Since 1993 Alberta has had a White Area wetland policy, but for years, regulators lacked both an accompanying implementation plan and the resources to enforce the policy. Not surprisingly,

wetland loss in the White Area continued at a rate estimated at between 0.3 and 0.5 percent per year. The *Provincial Wetland Restoration/Compensation Guide*, published in February 2007, represented a big step forward in effective implementation of a "no net loss" White Area wetland policy.

Both provincial and federal regulators assess proposals that impact wetlands through a process known as a "mitigation framework." (For an eloquent analysis of the implications of the word *mitigation*, please see Lorne Fitch's article beginning on page 4.) There is a hierarchy of preferred actions outlined for project proponents: first, to *avoid* disturbing the wetland entirely; second, to *minimize* damage to the wetland; and third, to take actions to *compensate* for any damage that the regulator permits. In practice, all too often there is pressure to move directly into a discussion of compensation. Environmental advocates have a role to play in ensuring that regulators require project proponents to demonstrate that the *avoid* and *minimize* alternatives have truly been exhausted.

Wetland Restoration

The preferred federal and provincial method for compensation is “restoration,” the re-establishment of natural wetlands that have been drained or altered. Restoration of natural wetland habitat in grassland settings has been highly successful, according to Jonathan Thompson, senior research biologist with Ducks Unlimited Canada. “It’s affordable – often simply a matter of plugging ditches – and effective. There’s quite a body of science now showing successful restoration of marshes and shallow open water wetlands common to Alberta’s prairies and parklands.” Working from a drained wetland inventory has allowed Ducks Unlimited to seek opportunities with willing landowners in landscapes with the highest value for waterfowl populations. “Restored wetlands have also benefited a broader array of wildlife in these regions,” adds Thompson.

While these restoration successes are certainly encouraging, restoration must not become an excuse for destroying natural wetlands elsewhere. Restoration is much more problematic in the Green Area boreal forest, where the prevalent wetlands are peat-based bogs and fens. About 43 percent of the oil sands region landscape consists of peat wetlands. With a relatively dry climate – precipitation is less than or equal to evapo-transpiration – the extensive boreal wetlands depend on complex interactions between groundwater and primarily organic surface soils. Prolonged water table declines, or chemical and erosion impacts from nearby industrial activity, produce severe effects on vegetation that are harder to redress than in typical White Area situations.

The 2007 *Guideline for Wetland Establishment on Reclaimed Oil sands Leases* states that while restoration techniques for bogs have had some success in the relatively wet climate of eastern Canada, they “remain largely untested in this part of the northern boreal ecosystem. There will be a period of trial and error in this region, and further research is certainly required.”

Wetland Construction

“Construction” as a compensation method occurs where the previous wetland was completely removed (as in mining) or where no wetland existed previously. Federal policy allows



Protecting wetlands such as these in the stressed Athabasca River watershed is critical for preserving water quality and quantity, and for maintaining wildlife habitat.

PHOTO: J. HILDEBRAND

wetland construction “as a last resort” compensation option. Provincial White Area policy allowed construction before 2007, but since the 2007 guide, restoration has been the primary compensation option. In the Green Area, however, construction of wetlands is allowed as part of restoring the land to an equivalent capability.

In the White Area, constructing wetlands is still a riskier process than restoring wetlands, according to Jonathan Thompson. “Appropriate soils and vegetation must be selected, or these wetlands will not function properly,” he says. “In addition, these are typically heavily engineered projects with much higher construction, operating and maintenance costs.” These risks justify retaining a preference for restoration over construction as a compensation method in the White Area.

Construction of wetlands in the Green Area is highly problematic. The ability to construct successfully functioning peatlands has never been demonstrated in the boreal. On oil sands mining leases, where tens of thousands of hectares of soils are removed, construction of wetlands requires re-engineering of whole watersheds. There have never been attempts to construct peatlands on this scale, and the ecological effects of replacing peatlands with other types of wetlands are unknown. Due to the complexity of this region’s wetlands, *avoid* and *minimize* are of crucial importance.

Wetland Protection

To be even remotely responsible stewards of this landscape, we need to retain the most ecologically significant functioning natural watersheds in the Green Area. The McClelland Lake and Wetlands watershed, situated 90 kilometres north of Fort McMurray, is a prime candidate for protection. Within this watershed, which ultimately drains into the Athabasca River, large fens channel slow-moving water into the largest lake between Fort McMurray and Lake Athabasca. An abundance of wildlife passes through or resides in this wetlands complex. Yet half of this wetland complex is slated for destruction by Petro-Canada’s Fort Hills Oil Sands Project. The wetlands and lake in the other half are bound to be severely affected by this activity. A responsible wetlands management policy would insist that industrial proposals avoid the significant McClelland watershed and other ecologically important wetlands.

Throughout Alberta, avoidance and minimization of wetland disturbance must be strongly championed. While restoration of prairie and parkland wetlands has been beneficial, it is not a panacea for all development pressures in the White Area. Considering the difficulty of achieving genuine compensation for wetland disturbance and loss in the Green Area, it is critical that significant boreal wetland areas be protected from industrial activity. 🌱