

# Shortfalls of Alberta's Wetland Policy in the Green Area



By Mai-Linh Huynh.

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**B**efore GPS devices and smartphones, I used aerial photographs to navigate through the backwoods of the Foothills Region and survey for long-toed salamanders (“Sallys”) in my youthful field days. In times when the underbrush would be too much to bear, I would follow animal trails hoping they would eventually lead me to the wetland I intended to survey.

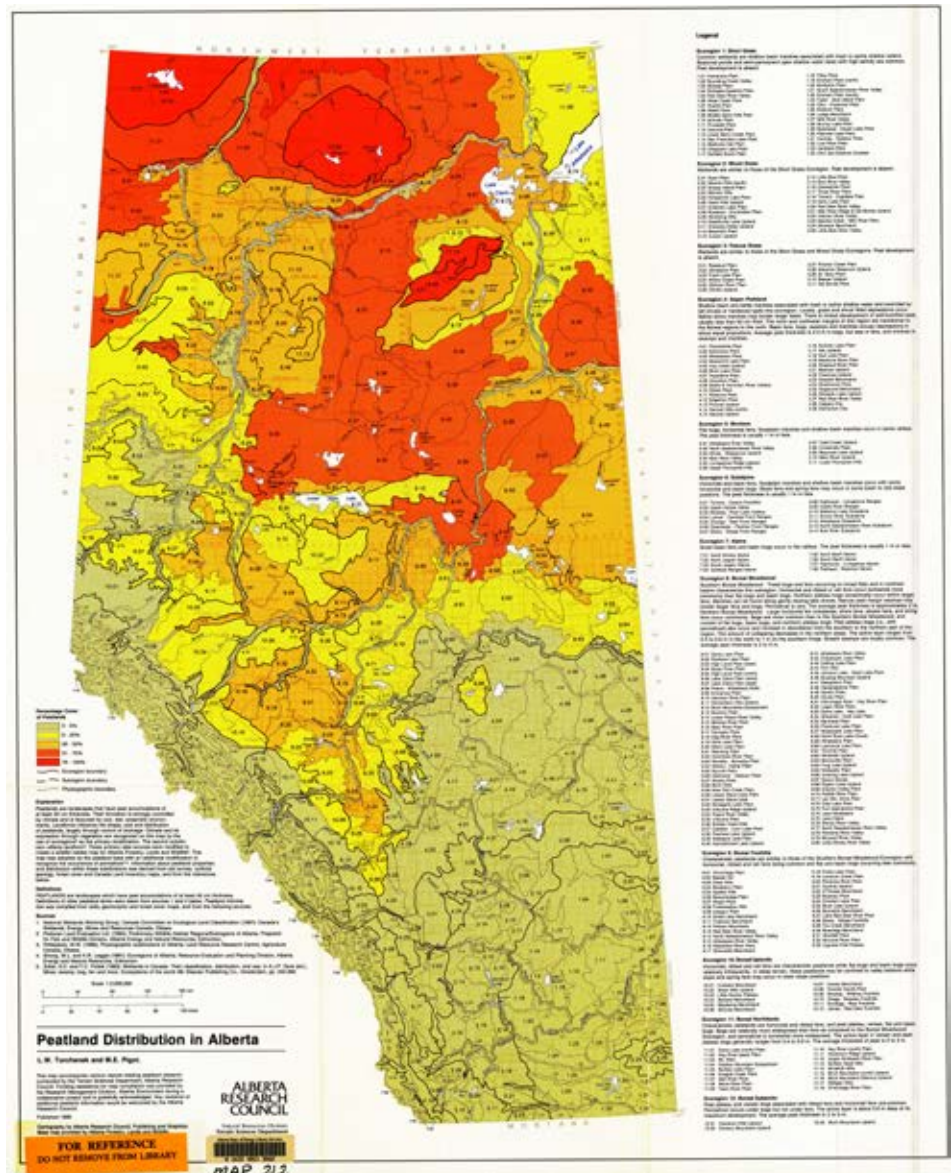
Having worked alone, I recall the serenity and solitude in the presence of these wetlands – a trill of a songbird, the buzzing of flies, the soft rustling of trees and sedges. It was on those hot sunny field days where I would soak my feet in glimmering cool waters, consume my bagged lunch, and review my field notes. How lucky I felt then and now to personally experience and understand the value these wetlands had to offer, while cognizant that not all Albertans will have the opportunity to experience them in their lifetime or to know of their mere existence. Truth be told, it feels gratifying to write an article on a subject very dear to me and one I believe is largely undervalued by and unfamiliar to many.

## Boreal Wetlands

Alberta's boreal wetlands are a critical part of the boreal forest region that covers over half the province. Administratively, our forested public lands are called the Green Area.

Green Area wetlands consist mostly of organic peat-forming wetlands called “peatlands” (bogs, fens) and also include mineral wetlands (swamps, marshes, and open water). Peatlands occupy 103,000 square kilometres of Alberta, 16.3 per cent of the total land base,

and between 30 and 40 percent of northern boreal areas. Peatlands play a vital ecological role for flood and drought/fire attenuation, biodiversity, and as wildlife habitat. They also act as a natural water filtration system and a massive storage sink for carbon.



Percent cover of peatlands by ecoregion in Alberta. CREDIT: GOVERNMENT OF ALBERTA

Across Canada, boreal wetlands are threatened by anthropogenic activities that include commercial forestry, petroleum extraction (oil, gas, bitumen, coal-bed methane), mining (bitumen, coal, peat, ore, and diamonds), agriculture, climate change and major hydrologic construction projects. Here in Alberta, petroleum extraction takes centre stage when it comes to the large-scale loss of peatlands. While some proposed projects have not proceeded, as of January 2018, 8.1 million hectares or 58 percent of Alberta's total oil sands area remains under oil sands leases.

In 2012, University of Alberta scientists Rebecca Rooney, Suzanne Bayley, and David Schindler estimated losses of up to 28,000 hectares of Alberta wetlands over the next several decades from four existing oil sands surface mining projects alone. In 2009, Peter Lee and Ryan Cheng estimated a total of 36,064 hectares of converted peatlands from seven approved and five proposed oil sands mines and as much as 202,411 hectares of peatlands that have been or may be changed from existing *in situ* projects and undeveloped leases. Even on leases that are not ultimately developed, extensive surface disturbances that often accompany seismic assessment of oil, gas and oil sands formations can sever hydrologic connections. This can impair functions of peatlands and other wetlands.

## Wetland Policy Scope

Until recently, no wetland policy existed for the Green Area. In 2013, the Alberta Wetland Policy (the Policy) was released and replaced the 1993 Interim Policy “Wetland Management in the Settled Areas of Alberta.” The Policy was implemented in the White Area (settled area) on June 1, 2015 and implementation in the Green Area followed a year later on July 4, 2016.

The Policy's primary aim is to protect wetlands of the highest value, to conserve and restore wetlands in areas of high loss, to avoid and minimize negative impacts to wetlands and, where necessary, to replace lost wetland value. The objectives of this Policy are an improvement over the previous policy vacuum for the Green Area – a wetland

management system that includes economic and ecological valuation of water resources. At best, the Policy recognizes the protection of high valued wetlands, particularly in the Prairie pothole region (i.e. in settled areas) where wetlands have experienced significant historical losses. In theory, this Policy will conserve and restore wetlands in these areas of high loss.

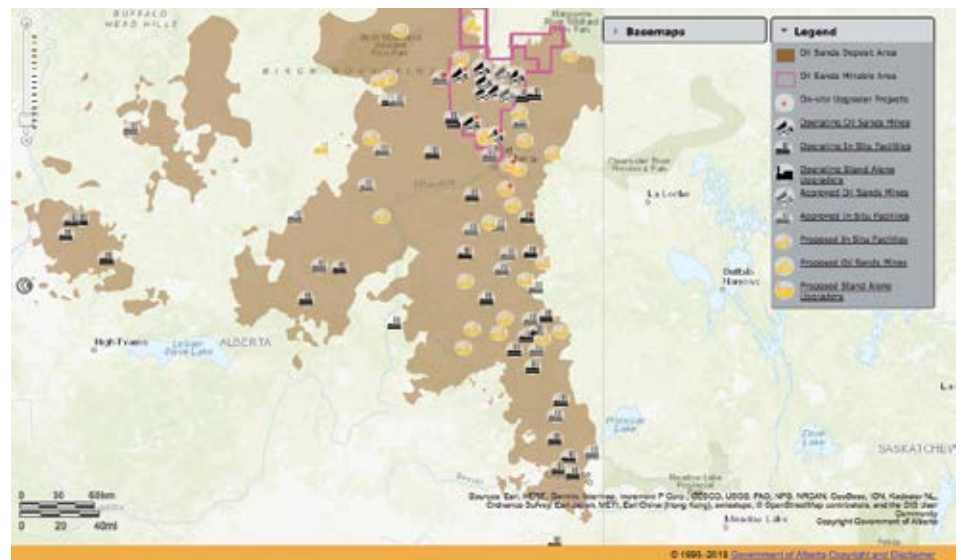
Boreal wetlands in the Green Area however may not benefit equally from this Policy. There are noteworthy issues of concern – the first being that the Policy **does not apply** to “administratively complete” project applications received prior to July 4, 2016. For example, activities with approved project boundaries, completed environmental impact assessments, and completed pre-disturbance assessments regulated by Alberta Energy Regulator (AER) and Alberta Environment and Parks (AEP) **will not** be subject to the Alberta Wetland Policy.

Future foreseeable projects deemed “administratively complete” prior to July 4, 2016 include Teck's Frontier Oil Sands Mine, the largest proposed open pit mine to date. The Frontier Oil Sands Project's environmental impact assessment was deemed complete under the *Environmental Protection and Enhancement Act* on May 16, 2016. In Teck Resources' supplemental filing (May 2017), it stated that the Policy would not apply to the

Frontier Project. Although Teck Resources concurs that wetland offsets might be appropriate for achieving their “voluntary vision of having a net positive impact (NPI) on biodiversity”, it does not propose any commitment or mitigation to replace wetland losses incurred on the post-closure landscape.

The fact that the province's highest profile industry of open pit and extensive *in situ* oil sands projects is almost completely excluded from this Policy significantly weakens the Policy in the Green Area. Wetlands were dominant in the mineable oil sands area, however there is no requirement for these operators to restore these wetlands to a pre-disturbance state or to replace wetlands what would be indefinitely lost. Rather, reclaiming land to a productive status equivalent to what existed prior to disturbance, called “equivalent land capability”, is provincially required for most landscape impacts. Equivalent land capability does not mean that the original ecosystem must be replicated in the restoration phase.

The Policy also does not acknowledge or require operators to compensate for the temporal loss of wetland function, which can span decades from the start of exploration activities to when the project site is fully decommissioned. Frequent, temporary, and cumulative wetland losses can easily contribute to a consistent and considerable net functional loss over time.



The oil sands industry has escaped the liability of restoring valuable wetlands and their ecological function to their original state. Future foreseeable projects deemed “administratively complete” prior to July 4, 2016 will not be subject to the Alberta Wetland Policy. SOURCE: © GOVERNMENT OF ALBERTA, ACCESSED AUG 2018 (<http://osip.alberta.ca/map/>).

## Policy Challenges

The Policy's focus on minimization and reclamation in the Green Area is based on the premise that wetland losses caused by the petroleum extraction and forestry sectors are *temporary*. Should reclamation be unsuccessful, operators will be required to compensate for wetland loss vis à vis the replacement mitigation option.

The replacement mitigation option includes one or a combination of the following actions: purchasing available credits from a third party *wetland bank*; paying into an *in-lieu fee program* where a third party will expend fees to restore, enhance, construct wetlands; and constructing, restoring or enhancing wetlands in advance or soon after losses occur. The replacement program is still under development.

I spoke to Thorsten Hebben, Director of Surface Water Policy at AEP, about the Policy's potential to protect boreal wetlands in the Green Area. He stated that the Policy's focus in the Green Area is to minimize front end impacts by promoting beneficial management practices, updating codes of practice, as well as developing directives on reclamation and wetland construction. He added that, for grandfathered project applications, the regulatory review process is the current mechanism through which new policy and operational requirements are incrementally introduced into the regulatory system. Hebben also confirmed that financial securities for reclamation remain unchanged.

Without changing the financial security system, industry-led reclamation approaches

may continue to cast uncertainty and mistrust as only a small percentage of a project's incurred financial liabilities are held in trust by government until close to the project's end-of-life, when requirements ramp up. Correspondingly, reclamation time frames are measured in centuries and bonding/liability agreements are not. Operators need to be held accountable during the time which reclamation is proven successful or unsuccessful post-closure. As such, liability agreements need to be updated or established to reflect this wetland replacement mitigation requirement. Furthermore, peatland reclamation is highly uncertain because of the "insufficient available area, time requirements for peat development, gaps in reclamation knowledge, and expense," as stated by University of Alberta scientist Lee Foote.

Rooney, Bayley, and Schindler estimated that the closure landscape for most of the mineable oil sands region would be predominantly constructed upland forest instead of peatlands (*refer to the following table below*). The net effect of this landscape transformation on biodiversity and ecosystem functions as well as loss of carbon storage potential has yet to be assessed and remains a serious concern to many conservation scientists.

## Wetland Valuation

For Green Area applications received after July 2016, proponents are required to assess the relative value of wetlands where there is proposed wetland loss. They will do so by using the ABWRET-A assessment method developed by AEP. This method includes

field observations collected by the wetland assessor, spatial data compiled by AEP, and models to generate scores on wetland functions such as water storage, fish and wildlife habitat, fire barrier, and human use. Regrettably, this valuation method contains no assessment of carbon sequestration, which unjustifiably overlooks the vital role that peatlands play in mitigating climate change.

An overall wetland value category is then assigned (A, B, C, or D; Category A being the highest value) after applying a **local loss rate or abundance factor**. The Government of Alberta states that the category value is "intended to inform planning and regulatory decisions around wetland avoidance, minimization and replacement, and is used to determine the replacement ratios where that is required."

The wetland 'abundance factor' raises wetlands' values by one 'grade' within the assessment unit where there is documented high historic loss. This is appropriate given one of the Policy's primary aims. However, in assessment units where boreal wetlands are estimated to be in relative abundance and have low historic loss, application of this factor results in downgrading their wetland value where A values turn to B's, B's to C's, and C's to D's. These changes in value category would consequently minimize replacement requirements.

Applying neutrality to abundance would have been a more rational approach, considering the important roles that wetlands play in retaining water, carbon, and diverse habitats wherever they occur. However, a discriminatory decision was made to **reduce** almost all wetland values by one grade in assessment where they are now estimated to be 'abundant' (according to Hebben, the top 5 percent of 'A' wetlands will remain 'A', regardless of the abundance factor). Application of this abundance factor in the Green Area explicitly defaces the true value of boreal wetlands. The fact that wetlands in the Green Area are downgraded by this valuation method certainly will not further the cause of protecting peatlands and preventing their ongoing loss and disturbance in the oil sands region and beyond.

Description	Net Change - pre vs post (ha)	Net Change (%)
Upland Forest	15,473	40
Peatland (bog and fen)	-12,414	-67
Wetland (peatland, graminoid, marsh, swamp, shallow open water, riparian scrubland, and littoral zone)	-11,761	-36

Table 1. Net change in landcover types: Upland Forest, Peatland, and Wetland to result from oil sands mining reclamation based on baseline reports and closure plans for the Horizon, Jackpine-Phase 1, Kearl, and Muskeg mines (adapted from Table 3, Rooney et al. 2012).

Hebben explained that the abundance factor was based on research developed by an independent consultant. This research focused on the settled portions of the province and applied spatial modelling of historical loss and wetland abundance that assisted

AEP in establishing the abundance modifiers (+1, 0, -1). Despite the little data and low confidence in estimating historical loss and wetland abundance in the Green Area, the abundance factor of -1 was applied and extrapolated to this Area.

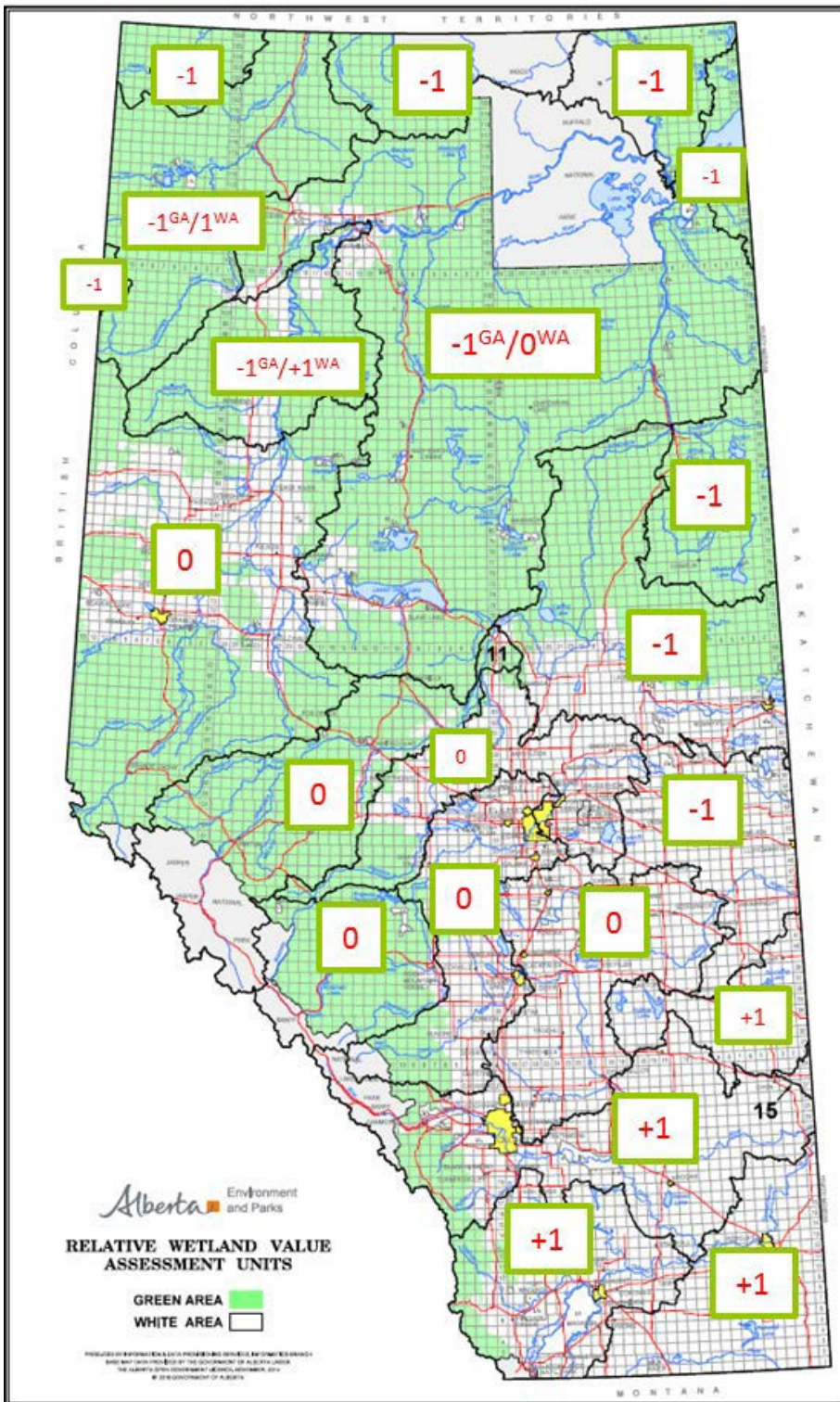
Hebben acknowledged that the -1 modifier is only interim until more data is collected in the Green Area. He also implied that loss of wetland function, for example the loss in the capacity to support an abundance and diversity of songbird or mammal species, may take precedence over loss of wetland area or numbers when considering revisions to the abundance factor.

## Conclusion

By the end of 2019, AEP's goal is to have a centralized system for the administrative review of wetland applications. As well, it plans to have a provincial database for wetland inventory and monitoring. Currently, information on policy outcomes and reporting is not publicly available.

The Alberta Wetland Policy has disappointing implications for the health of boreal wetlands in the Green Area. Boreal wetlands are not adequately protected by this Policy and, by exempting complete project applications from the Policy, wetland loss and disturbance may not be restored to its original state in the oil sands region. In addition, wetland valuation methods devalue Green Area wetlands by applying the abundance modifier, resulting in diminished replacement requirements. The Policy also has no mechanism to deny applications that propose to destroy high valued wetlands.

As the replacement program under the Wetland Policy is still under development, it is too early to determine whether restoration of wetland area and function could be accomplished. Through established wetland inventories and monitoring, only time will tell whether this Policy is effective in achieving its wetland restoration objectives. It is important for independent researchers, and groups like AWA, to continue to update the public and remain an important stakeholder as the Policy implementation progresses. ▲



Map of regional abundance factors applied to ABWRET-A relative wetland value categories. Wetlands in the Green Area are downgraded by one value category (e.g., from A down to B, etc.) in sub-watershed areas denoted by "-1", which covers a large extent of Alberta's boreal region. WA - White Area. GA - Green Area. SOURCE: GOVERNMENT OF ALBERTA.

*Special recognition is owed to Carolyn Campbell, AWA Conservation Specialist, for her guidance and contribution to this article and in whole, to my research on Alberta's Wetland Policy implementation in the Green Area.*