

Summary of Scientific Peer Reviews Conducted on Two Land Use Plans for the North Central Land Use Plan Area

1. *Ecosystem-based Conservation Plan*
(Uskiy Puhco/Silva Forest Foundation)

and

2. *Integrated Forest Land Use Plan*
(Saskatchewan Environment)

March 1, 2007

Introduction and Background

In the summer of 2006, the Saskatchewan citizens group, Uskiy Puhco and the Silva Forest Foundation (Silva), requested a peer review and comparison of two plans for the North Central Land Use Plan Area in northern Saskatchewan. The two plans are: *Towards Ecosystem-based Conservation Planning in the North Central Land Use Plan Area* (Silva, May, 2005) and *North Central Integrated Forest Land Use Plan—Draft 2* (Saskatchewan Environment, January, 2006). The Uskiy Puhco (Silva) plan is an ecosystem-based conservation plan that provides for ecologically and culturally sustainable land use. The Saskatchewan Environment plan is a land use plan that identifies some areas of ecological sensitivity.

These two plans were developed during the Saskatchewan government's land use planning process for the North Central area, which was initiated in 2001 and is currently ongoing. The Uskiy Puhco plan was developed by citizens participating in the plan who believed that ecosystem-based approaches were not being followed in the Saskatchewan government's plan to the extent deemed necessary to protect land and culture.

Four peer reviewers completed the review and comparison of these two plans and associated materials in the fall, 2006. This document constitutes a summary of these reviews.

The peer reviewers are:

1. Dr. David Henry, boreal forest ecologist has spend significant time studying and observing the forests in north central Saskatchewan, has written *Canada's Boreal Forest*, Smithsonian Natural History Series, 2002, and is an adjunct professor in the Environmental Sciences Program at the Faculty of Environmental Design, University of Calgary.
2. Mr. Peter Lee, Executive Director Global Forest Watch Canada has a graduate degree in geography and ecology, has written a comprehensive report on the ecological, social, and cultural aspects of Canada's boreal forest, and has twenty years experience in land use planning with the Alberta government.

3. Dr. James A. Schaefer, Professor, Biology Department, Trent University focuses on the population ecology and behaviour of northern terrestrial mammals, particularly woodland caribou, contributes to environmental assessment hearings on land use in the boreal forest, and is one of the recipients of the 2006 Aldo Leopold Leadership Fellowships.
4. Dr. Kevin Timoney, landscape ecologist, Treeline Ecological Research has conducted research and published extensively on a wide variety of topics in the boreal forest of Canada, participated in a range of government and industry planning initiatives, and produced a detailed report on the old growth forests of Alberta.

Format for the Reviewers: While general comments on the plans, interpretive maps, and related materials were requested, the format for the review was structured around five key questions that compare the two plans:

1. How well does each plan follow the principles, as described in the scientific literature, for development of an ecosystem-based conservation plan?
2. How well does the approach used in reserve design in each plan follow the scientific literature that describes ecosystem-based approaches to conservation planning?
3. Given the information provided, how well do the various reserve designs accomplish protection of ecological integrity (i.e. protection of ecosystem composition, structure, function, and processes) at the large landscape scale? In answering this question we ask that you include reference to maintaining specific ecological processes, and providing for the persistence of focal species of your choice.
4. How well does each plan provide for the maintenance of resources necessary to maintain subsistence economies and non-timber-resources?
5. What key additional information is necessary to refine and improve confidence in the plans to provide for protection of ecological integrity, as the foundation for conservation of biological diversity and development of ecologically and culturally sustainable economic activities?

Materials Analyzed by the Reviewers: The complete list of materials provided to the reviewers may be found with the letter to the reviewers that is included as Appendix 1 to this document.

Terminology: It may be noted that the planning document entitled, *Towards Ecosystem-based Conservation Planning in the North Central Land Use Plan Area* was prepared by Silva at the request of Uskiy Puhco (UP). Silva and UP have worked cooperatively on this plan, with UP providing direction and information to Silva and UP being the final decision-maker, regarding plan direction. Therefore, throughout this peer review summary, *Towards Ecosystem-based Conservation Planning in the North Central Land Use Plan Area* and related material are generally referred to as the “Uskiy Puhco plan” or the “UP plan”. This convention is not followed where peer reviewers’ quotes use refer to the Uskiy Puhco plan in a different way. The Uskiy Puhco letter attached to this

document as Appendix 2 describes the relationship between Uskiy Puhco and the Silva Forest Foundation.

General Outline of this Summary Document: This Peer Review Summary starts with a synopsis of the reviewers' general comments and then summarizes the peer reviewers' answers to the five questions above. This is followed by a summary of the peer review results. The reader will see that the reviewers did a clear, concise job of highlighting the differences between the two approaches to planning in the North Central Land Use Plan Area.

GENERAL COMMENTS

Ecosystem-based Conservation Planning:

The Saskatchewan Environment (SE) plan was seen at best by the reviewers as a “scoping document” and a “very preliminary first step in land use planning.” In contrast, the Uskiy Puhco/Silva plan was seen as “a rigorous and defensible” plan designed to maintain ecological integrity, to provide for a diversity of land uses, and to facilitate the development of sustainable community economies. Several of the reviewers suggested that SE needed to adopt the approaches and findings of Uskiy Puhco, if the SE plan was to provide for the ecological, cultural, social, and economic benefits the SE plan alleged to provide.

Reviewers acknowledged that the precautionary approach used in the Uskiy Puhco (UP) plan is vital to achieving sustainable land use in the sensitive forest landscapes of northern Saskatchewan. In the words of one reviewer, SE's plan “exemplifies our tendency to stay the course—as David Korten quipped, ‘to go boldly where no one wants to go.’” Whereas, UP's plan was analyzed to be “deeply rooted in a precautionary approach and the (limited) knowledge of the limits set by the nival, edaphic, floral, and hydrological environment. The UP plan acknowledges that mistakes may easily result in long-lasting or permanent ecological degradation.

Use of Public Information:

One reviewer questioned the inclusiveness of public input into the SE plan, noting that after the Regional Advisory Board (i.e. the public planning team) was dissolved part way through the planning process, SE hired an “independent mediator” to obtain consensus on land use zoning from a new planning team. The reviewer observed that the mediator was not “independent,” because she was hired by only one party (SE) to the dispute. The reviewer goes on to say that the SE report implies that the recommendations of the UP plan were incorporated into the SE plan. However, the UP plan incorporates a fundamentally different ecological reserve design and zoning approach than that used by SE. For example, Uskiy Puhco suggests that approximately 287,000 hectares may be suitable for small-scale ecosystem-based forestry, as a “Community Forest”. In contrast, SE designates approximately 1,737,000 hectares, “six times the extent of the “Community Forest” as an industrial timber management zone.

The Uskiy Puhco plan designates approximately 1.12 million hectares in Core Reserves and Linkages (approximately 30% of plan area, excluding water which occupies 20% of the plan area), and calls for finer scale reserves in the areas used for economic development activities i.e. multiple spatial scale reserves. The SE plan designates two Ecological Reserves totaling approximately 393,000 hectares (approximately 10% of plan area, including water).

Forest Management:

A reviewer observed that SE's plan is "typical of a government-staff led detailed land use plan resulting from many years of driving a planning process to a pre-determined result." In this sense, the reviewers noted that the primary goal of the SE plan was to allocate a Forest Management Agreement to the Lac La Ronge Indian Band, which negates an inclusive planning process for a broad mix of land uses and the development of an ecosystem-based plan.

Relating to the recommendations in the SE plan to carry out extensive industrial timber management throughout the NCLUP area, reviewers raised important questions and offered opinions, and questions regarding the questionable sustainability of this poorly supported, poorly researched decision:

- "If the forests of this area are harvested as suggested [in the SE plan] over its diverse range of landforms, how many years will it be before these forests are re-established? Certainly enough forest harvesting has taken place in the southern part of the NCLUP area that this question can be answered....Why are we not provided with these answers? Has the research been carried out on the existing cut blocks in order to answer these questions? Having these answers about forest rotational times seem mandatory to the successful NCLUP."
- "Timber harvesting on the Shield areas of Saskatchewan strikes me as a new and questionably sustainable enterprise. How many years will it take to re-establish these forests once they are harvested? What data are your predictions based on? Areas harvested on the Shield will be susceptible to drying effects. If a fire consumes the soil in these areas (as it often does), how many years before a forest is re-established on these sites? I can easily imagine that it could be 300 to 400 years before forests are re-established on such sites. Make your resource use decisions carefully, based on sound scientific information, particularly for Shield areas of northern Saskatchewan."
- "Can large-scale forest harvesting on the Canadian Shield ever be a sustainable forest operation? Can Saskatchewan Environment provide compelling information about this resource use? They have not done so in the document entitled 'North Central Integrated Forest Land Use Plan.'"
- "Harvesting the forests to the extent suggested [by SE] may seriously dry out the climate throughout central Saskatchewan. Has research been carried out to determine

if this climatic effect should be expected? Would this lead to an increase in the frequency of forest fires in northern and central Saskatchewan? Could this drying effect lead to serious impacts on the agricultural industry of Saskatchewan?”

RESPONSES TO SPECIFIC QUESTIONS

Question 1. How well does each plan follow the principles for development of an ecosystem-based conservation plan?

All four reviewers indicated that the UP/Silva plan followed the principles of ecosystem-based planning very well. In contrast, the SE plan only alleged to follow ecosystem-based planning principles, and was not found to follow the principles of ecosystem-based planning in the substance of the plan.

“Both plans purport to follow the scientific principles for ecosystem-based planning, the Silva [Uskiy Puhco] plan is far superior and focuses on conservation first whereas the Saskatchewan government’s plan is troubling in this regard. Why conservation first is critically important is due to the high sensitivity of boreal ecosystems to anthropogenic industrial activities and due to over-arching goals of sustainability.”

The reviewer who provided this last statement, provided a number of examples of the inadequacies from the SE plan, including: “ ‘...forestry can also provide inherent benefits to the forest ecosystem when undertaken with other forest values in mind.’ (page 42-SE plan) This sounds nice but is nonsensical.”

Another reviewer focused his answer to this question around the issue of sustainability: “The SILVA [Uskiy Puhco] plan equates sustainability with ‘forest health’, founded on establishing hierarchical networks of ecological reserves and restraining human effects within the range of natural variation across space and time” This is not only the correct foundation to achieve sustainability, but also is reflected in the Uskiy Puhco plan in the ecological reserve design, the care to respect natural limits in all human activities, and the acknowledgement of uncertainty through consistent use of the precautionary principle.

In contrast, “...the SE plan (albeit shorter and less comprehensive in its treatment) fails to progress much beyond mere ‘ecosystem terminology’. For instance, it is frequently stated in the document that aspects other than timber values ‘will be considered’ (p. 42) or that the impact on the environment will be taken ‘into account’ (p 58). These are rather facile statements because, as noted above, to admit the alternative—that these attributes will *not* be considered—would never explicitly be mentioned. Like ‘follow[ing] provincial standards and guidelines’—likewise repeatedly stated (pp.41, 42, 47, 51)—these intentions should properly be regarded as *necessary*, but not necessarily *sufficient*, aspects of any land use plan. They go without saying.”

This reviewer continued, providing several examples of why the SE plan does not provide for sustainability: "...in the SE plan, the notion of sustainability seems at times contradictory, confused, even nonsensical, some examples:

-It is stated that 'intensive resource extraction and development [like mining] is promoted on the basis of sustainability' (p. 74) even though (at least to me) it is not clear how extraction of non-renewal resources can even remotely qualify as sustainable.

-Under Sustainable Forests (p. 41), failing to maintain sustainability is equated with 'reduce[d] future rates of harvest', implying maximum sustained yield as an objective, even though the history of this approach is the history of failure. Similarly, it seems that wildlife and fish resources are already 'fully allocated' (pp. 49, 53), another instance of the philosophy of maximizing production for human gains."

Another reviewer compared the two plans by comparing the map sets that accompany the plans. Regarding the SE plan, he indicated that the map set "...provides insufficient information to support the plan and the SE claim that an ecosystem-based approach was used. A third party could not reproduce [the plan results]." Regarding the UP plan, he commented that the maps "...provide sufficient information to support the ecosystem-based plan in the Silva [Uskiy Puhco] report. Sufficient information is presented to allow a third party to reach its own conclusions."

"While the SE report used the term "ecosystem-based management", it did not follow its precepts. Without a detailed forest inventory, discussion of sustainable forests was premature. The government did not speculate on the level of harvest—once again, talk of sustainability is premature when basic data and analyses are lacking."

Question 2. How well does the approach used in reserve design in each plan follow the scientific literature that describes ecosystem-based approaches to conservation planning?

One reviewer explains: "Only the Silva plan follows reserve design principles and specifications described in the literature. The focus on boreal river systems is brilliantly simple in its inherent ecological logic."

Regarding the SE plan, the same reviewer stated: "An unbiased review must point out the serious lack of substantiation for much of the content, including the choice of protected areas in the government's plan. The stated goal of 12% province-wide alone raises questions about this plan's sincerity to achieve ecological sustainability when most experts are recommending at least 50% of the boreal should be protected."

Another reviewer also thought that the SE plan provides for inadequate ecological reserves, while the UP plan did a good job of following the scientific literature in designing ecological reserves for the NCLUP area:

“For the SE plan, three zones are proposed—Protected, Sensitive, and Management. Different wildlife species, however, operate at different spatial scales, implying that such parceling of the land base needs to be framed at not just one, but multiple spatial scales—that is there is not explicit mention of establishing protected zones(at successively finer scales) within the Sensitive and Managed zones. Furthermore, the straight-line borders of the Pink Lake Representative Area suggest that ecological basis (such as the limits of a watershed or wildlife population) have not been followed.”

“The UP Plan is superior in this regard. It carries broad-scale planning (Core Areas, Conservation Emphasis, Community Forest to finer scales (Protected Landscape Networks, and Protected Ecosystem Networks). It follows some of the area’s natural features, such as watersheds and ecodistricts (p. 153) as a more profitable means to envelope populations and ecological processes.”

“The target of 12% of Saskatchewan’s land as protected areas, as expoused in the SE plan, is highly unlikely to safeguard biodiversity.... ‘Habitat representation’ (p. 41) [SE Plan] does not suffice as a means to protect populations and species at risk. **Take woodland caribou. Under the SE plan, the extirpation of woodland caribou in the planning area can virtually be assured**”. (emphasis added)

“Woodland caribou are incapable of persisting on ‘managed’ landscapes. Bluntly stated, ‘best practices’ (p. 20) [SE Plan] and ‘follow[ing] provincial standards and guidelines’ (p. 41) [SE Plan] may simply not be good enough. With regard to woodland caribou, ‘successful timber harvesting practices from other parts of the Boreal forest’ (p. 43) [SE Plan] are non-existent, to my knowledge.”

“The UP plan provides a more likely scenario for caribou persistence.”

Commenting on the SE plan another reviewer, stated: “The zonation framework (section 5 of SE report, and SE Map 2) is flawed. Reasons:

(a) Information gathering ‘by far the most critical stage in developing the Plan’ was presented in such vague terms as to be impossible to reproduce. In essence the zonation was presented as *fait accomplish* leaving the reader to guess how the zone boundaries were drawn.

(b) Even using an outmoded forest land use planning approach, zone boundaries cannot be delineated in the absence of a forest inventory—in particular [for] a forest management zone.

(c) The zonation scheme should have used airphoto analyses for zone mapping, but did not. Basing the zonation on limited ground-based information renders the zones dubious...

(d) SE required that recognized values be present for sensitive zone designation. As the information base for those values was inadequate, the procedure was the reverse of precautionary planning. A precautionary approach requires that recognized values are

know to be absent prior to designating an area as non-sensitive. The fact that airphoto analyses were not used in the zonation is egregious in this respect.

(e) Much of the SE Pink Lake protected area (SE Map 2) is covered by recent burns (Silva Map 6) and a paucity of mineral resources (SE Map 4). The government document that discusses the Pink Lake area in the context of a protected area designation does not mention the recent fires activity (SE 2005). It does however state that the land is ‘unallocated for the purpose of harvesting its timber resources therefore the site has not been commercially harvested’ [English usage sic]. While protection of landscape parcels is, in general, a benefit to society, the choice of the Pink Lake area does not seem to be based on enduring features and ecological value. Was the area proposed for protection because of its low mineral values?”

This reviewer had the following to say about the Uskiy Puhco (Silva) mapping and reserve design: “In contrast, the Silva report based its zonation on a combination of airphoto analyses, ground-level field checks, helicopter reconnaissance, and overlays of pre-existing geospatial data.”

Question 3. How well do the various reserve designs accomplish protection of ecological integrity at the large landscape scale?

Reviewers generally found that the UP Plan provided good protection of ecological integrity at the large landscape scale, while the SE Plan provided inadequate protection.

One reviewer offered: “Given the scales of the protected areas networks and related zones in the Silva [Uskiy Puhco] plan, and given the clear description of how these were derived and the stated limitations in their selection, there is simply no comparison with the government’s plan, which is woefully inadequate.”

The same reviewer indicated: “It is important to point out that although both plans recognize the lack of key information, such as vegetation-timber-habitat-species information, there is NOT a lack of information to make key landscape decisions regarding protection and use. The Silva [Uskiy Puhco] plan makes a good attempt at this through a broad zoning scheme.”

Another reviewer stated: “Maintaining ecological processes is key to proper land use. Size of the reserves is fundamental in this respect and, given the apparent frequency of fires, for example, it seems unlikely that the SE plan will suffice to maintain the natural fire cycle. Prospects for the UP plan are much better, but this should be evaluated quantitatively.”

This reviewer continued: “There is no explicit consideration of landscape connectivity in the SE plan. In the UP scenario, the linkages (LK-1 and LK-2) appear to satisfy the need for connectivity, but not merely as corridors for movement (a strategy likely to prove insufficient for woodland caribou, for example) but *occupancy*. The breadth of these corridors, at approximately 20 km, would likely accommodate a woodland caribou home range, typically about 500 km² (Rettie & Messier 2001)”

Another reviewer agreed with the lack of consideration for landscape connectivity in the SE plan: “In the SE zonation, little or no thought appears to have been given to providing for landscape connectivity....The SE plan did not demonstrate how human disturbances will be managed to ensure maintenance of ecological patterns and processes, a basic requirement of ecosystem-based management (Schneider 2002).”

This same reviewer pointed out that “In the SE management zone ‘intensive resource extraction and development (forestry, mining) are promoted on the basis of sustainability....In practice, ‘sustainability’ in forestry operations generally applies a sustained yield paradigm.....the wholesale conversion of the landscape age-class structure to roughly equal areas contained in a set of age-classes with the oldest age-class equal to the rotation age....this means: simplification of the spatio-temporal age-class and composition mosaic; a loss of structural biological legacy; a decline in timber revenue per has as high-value original forests are converted to lower value second-growth; declines in water quality, fish habitat, and non-timber values; and landscape dissection and fragmentation (Maser 1994; Timoney 2001, 2003). ‘Sustained yield’ is the antithesis of sustainability.”

Question 4. How well does each plan provide for the maintenance of subsistence economies and non-timber resources?

Speaking in general terms about the maintenance of community economies and non-timber resources, one reviewer, who has worked with towns in the boreal forest of Sweden and Finland that have been developing their regional economies during the past 25 years to make them truly sustainable, offered:

“There is an important theme that runs through the documents focused on such enterprises as: non-timber forest products, wildcrafting, wilderness tourism, and cultural heritage interpretation. It is also important to affirm that this region of north central Saskatchewan—particularly the Shield area—is one of the most beautiful landscapes to be found in Canada. I believe over the long term this landscape has immense tourism potential. Northern Saskatchewan should be encouraged and supported to develop alternative economic forest enterprises.”

This approach to development of a “conservation-based” economy in the North Central Land Use Plan area is encouraged by the UP Plan, but only given casual mention in the SE Plan. Indeed, the large portion of the NCLUP area dedicated to timber management in the SE plan effectively forecloses on future development of a “conservation-based” economy in the NCLUP area.

Another reviewer focused on the government’s lack of information on economic issues compared to UP (Silva): “The Saskatchewan government has not determined whether the costs of forest operation will be exceeded by revenue. Basic forest economic analyses were lacking. The Silva report presented a forestry economic analysis; they concluded that a forestry economy in most of the study region was marginal at best.”

This reviewer continued:

“The people of north-central Saskatchewan have a long-standing relationship with the land and water. They are at a crossroads in a changing world. The Saskatchewan Government has presented them with a business as usual plan for the region. If the people choose to acquiesce with the government plan, they may lose their healthy land and water and the culture and traditions that depend on them.”

“Even in southern Canada, large, well-established forest companies with economic advantages and access to markets are experiencing plant closures, deficits, and loss of market share in the face of cheap foreign-derived forest products. Smaller companies operating in remote areas on Precambrian Shield terrain with low timber volumes per ha are under even larger economic disadvantages. A business as usual approach in northern Saskatchewan, based on exports to the global market, should be viewed as a liability for the future of the region’s people, not as a viable strategy (see Power 1988).”

The lack of economic analysis in the SE plan, compared to key economic analysis in the UP plan was observed by another reviewer:

“The findings presented in the UP Plan (pp. 71-72, 117)—a latitudinal gradient in productivity, only scattered merchantable stands (p. 117), and greater timber volume in logged areas in the south—imply a limited potential for forest harvesting, or at a minimum, that such harvesting must occur very slowly. These limits are not acknowledged in the SE plan.”

“Another positive aspect of the UP plan is explicit acknowledgement of the economic costs of road building, in light of the low volume, small diameter wood in some forests (p. 217). Indeed, it is essential that ‘perverse subsidies’ from government—widespread in resource extraction industries (Myers 1998)—are not used to bolster an activity that is damaging both to the environment and economy.”

“In the SE plan, it is proposed to ‘compare the economic value of non-timber forest products to other developments’ (meaning forest production). This has already been conducted on a national scale (*Counting Canada’s Natural Capital: Assessing the Real Value of Canada’s Boreal Ecosystems*, Canadian Boreal Initiative and Pembina Institute, 2005)—a report which demonstrates that the total non-market value of boreal forest ecosystem services (\$93.2 billion) exceeds the net value of natural capital extraction by about 2.5 fold. The findings support the UP plan, with its much larger focus on non-timber values and benefits.”

Question 5. What key additional information is necessary?

One reviewer suggested that “a system support system (e.g. simple computer models for the lay person) that would allow participants to query a model that would explore various options of land use decisions” might be useful in resolving disagreements in the NCLUP.

Another reviewer pointed out the differences between the ways that the two plans handled a dearth of information: “Both plans recognize that our knowledge of the area must be improved and that ‘every effort will be made to fill [information] gaps’ (SE plan p. 77). Knowledge, of course, is a crucial ingredient for adaptive management.....The UP plan appears correct in its assertion that vital information is lacking. This uncertainty, stemming from the lack of knowledge, is not adequately addressed or even conveyed in the SE plan.”

This reviewer supported UPs’ recommendations for additional information on forest cover types, and, overall, “fuller documentation of scientific and indigenous knowledge in mapped form, especially on the flora and fauna for establishment of the Protected Areas Network (p. 144) and the fire history beyond 200 years (p. 14) [UP Plan].”

He also recommended that the suitability of the Protected Areas Network (as proposed by Uskiy Puhco), “especially its capacity to integrate natural disturbances, needs to be examined quantitatively.”

Another reviewer suggested that the SE plan should be revised by incorporating materials from the UP (Silva) plan: “The SE plan should be revised to incorporate the spatial documentation provided in the Silva report. The Silva plan presents an alternative future based on healthy ecosystem supporting healthy communities. In order for parties to reach consensus, the best spatially-explicit information and analyses are necessary; the Silva report provides these. The SE zonation and plan should be modified accordingly.”

This reviewer also suggested the following information would be useful: “A stand-level GIS-based map of the planning area, Occurrence maps of all rare and/or sensitive species and communities that exist in the planning area, and A report that presents an analysis of all the revenues and monetary, social, and ecological costs incurred under two scenarios: The SE forestry and the Silva forestry plans.”

SUMMARY

Overall, the reviewers found that the Uskiy Puhco Plan followed the principles of ecosystem-based conservation planning, and provided multiple spatial scale reserve designs that are likely to protect the ecological integrity and biological diversity of the NCLUP area over time and across spatial scales. The reviewers also found that the UP Plan has done a good job of identifying economic issues and providing the foundation for development of sustainable community economies based upon non-timber resources.

In contrast, while pointing out that the SE Plan made similar assertions to the UP plan regarding sustainability and ecosystem-based planning, the reviewers all concurred that the SE Plan did not constitute an ecosystem-based conservation plan, did not follow the requirements of the scientific literature in developing an ecosystem-based conservation plan, nor did it provide adequate protection of the ecological integrity and biological diversity of the NCLUP area. In addition, the reviewers all pointed out the ecological and economic flaws in the SE plan in supporting large-scale industrial timber management over much of the NCLUP area. The lack of supporting information for statements made, and the frequent contradictions were two aspects of the SE plan that were repeatedly mentioned by reviewers.

One reviewer summarized his thoughts about the two plans like this: “The document [UP Plan] summarizes major findings and recommendations concerning land-use planning and sustainable resource management in north central Saskatchewan. I agree with most of the points (not all of them) articulated on these pages. If these suggestions were followed, they would do much to advance an ecosystem-based land-use plan that would ‘ensure the long-term health of all parts of the forest’. Such a plan would help the ecosystems of north central Saskatchewan ‘stay healthy, not only for today, but for generations to come.’ (UP’s letter).”

Another reviewer summarized his view of the two plans in this way:

“The landscape of north central Saskatchewan is characterized by bedrock-controlled terrain with an abundance of lakes, wetlands, and shallow/sensitive soils. The comparatively low primary productivity of its forests, low timber volumes, active wildfire regime, geotechnical and cost constraints for roads, and distance from southern markets make industrial forestry in the region a marginal proposition.”

“Given the provisional nature of the SE plan, ministerial approval is premature. The people of north-central Saskatchewan deserve better. Saskatchewan Environment needs to revise its plan and zonation in light of the information presented by Silva [Uskiy Puhco].”

This same reviewer rated the two plans on a scale of “3”, with “0” being poor and “3” being excellent. The SE Plan was rated at 0.6, or poor-fair, while the UP Plan was rated 2.4, or good-excellent.

Another summary comment from a reviewer offered:

“It has been nearly 70 years since Aldo Leopold pointed out the ‘oldest task in human history: to live on a piece of land without spoiling it’ (Meine 2004). While both plans for the North Central Area claim to provide a resolution to this ancient challenge, there are several essential elements—the acknowledgement of uncertainty, the adherence to precaution, and a broader vision in time and space—

almost exclusive to the UP plan. Major tasks remain (p. 152), but the broad brushstrokes of the UP plan are on the sustainable track, for the well-being of both the people and the environment.”

APPENDX 1

May 31, 2006

Dear *Reviewer*:

On behalf of Uskiy Puhco and the Silva Forest Foundation (Silva), thank you for agreeing to review and compare *Towards Ecosystem-based Conservation Planning in the North Central Land Use Plan Area* (Silva, May, 2005) and *North Central Integrated Forest Land Use Plan—Draft 2* (Saskatchewan Environment, January, 2006).

The letter from Uskiy Puhco that accompanies this letter provides an important explanation of the context and events that have lead to the development of the *Uskiy Puhco—Silva ecosystem-based conservation plan*, and the *Saskatchewan Environment land use plan*. As such, the Uskiy Puhco letter is integral to the instructions for review and comparison of the two plans that are provided in this letter.

Both of the plans were catalyzed by the North Central Land Use Plan process that has been conducted by Saskatchewan Environment (SE) from 1999 to the present. The data used for the development of each plan was similar, consisting primarily of data developed by Saskatchewan Environment.

In addition, Silva conducted stereoscopic air photo interpretation and carried out two field sessions in portions of the North Central Land Use Plan (NCLUP) area. Silva also digitized and analyzed surficial geology for the NCLUP area that was obtained in paper format from Saskatchewan Research Council. SE had access to traditional land use data provided by the Lac LaRonge Indian Band, which is considered proprietary and is not available to Silva or for this review. More detailed descriptions of data and data gaps may be found in the text and appendices of each plan.

One important aspect of the plans that we are asking you to review and compare is the ecological reserves designs. The *Uskiy Puhco—Silva* plan provides a large landscape protected areas network design for the 3.7 million hectare NCLUP area. The *Saskatchewan Environment* plan provides a representative area or protected area design for the NCLUP area.

The following materials accompany this letter and provide the basis for your peer review and comparison:

Note: depending upon your specifications, these materials have either been provided in paper or electronic format, with the exception of materials that are only available in paper format.

Attachment 1: *TOWARDS ECOSYSTEM-BASED CONSERVATION PLANNING IN THE NORTH CENTRAL LAND USE PLAN AREA* (Silva, May, 2005) provides the background and explanation for the *Uskiy Puhco—Silva* plan. As indicated in this document, this is an *initial* plan that will continue to be refined as more ecological, cultural, and economic information is available.

Attachment 2: *SUMMARY of TOWARDS ECOSYSTEM-BASED CONSERVATION PLANNING IN THE NORTH CENTRAL LAND USE PLAN AREA* (Silva, May, 2005) provides a short summary of the key results and recommendations from the full plan-report provided as Attachment 1.

Attachment 3: *APPENDIX for TOWARDS ECOSYSTEM-BASED CONSERVATION PLANNING IN THE NORTH CENTRAL LAND USE PLAN AREA* (Silva, May, 2005) provides important information regarding the data sources for the interpretive maps set, and includes the field data summaries from field sessions conducted in 2003 and 2004. Note: the appendix is only available in paper format.

Attachment 4: INTERPRETIVE MAP SET FOR NCLUP AREA (15 maps) (Silva, May, 2005) contains the key maps for design of the *Uskiy Puhco—Silva* protected areas network for the NCLUP area, and additional maps that contain either partial ecological information that needs to be expanded to improve the protected areas network design, or economic information utilized in economic planning.

Attachment 5: INTERPRETIVE MAP SET FOR PROPOSED COMMUNITY FOREST AREA (5 maps) (Silva, May, 2005) along with discussion in Attachment 1, provides Silva's analysis of ecosystem-based forestry and conventional forestry in the southern portion of the NCLUP area. This area contains the most productive, for timber, portions of the NCLUP area.

Attachment 6: APPENDIX 1: SCIENTIFIC SUPPORT FOR ECOSYSTEM-BASED CONSERVATION PLANNING: A REVIEW OF THE LITERATURE (Herb Hammond, 2005 in *Maintaining Whole Systems on Earth's Crown: Ecosystem-based Conservation Planning for the Boreal Forest*—in preparation for publication) furnishes the scientific rationale for the ecosystem-based conservation planning definition and principles used by Silva to develop the *Uskiy Puhco—Silva* plan.

Attachment 7: *NORTH CENTRAL INTEGRATED FOREST LAND USE PLAN—Draft #2* (Saskatchewan Environment, January, 2006) provides the text for the *Saskatchewan Environment* plan. Saskatchewan Environment has prepared Draft #3 of this plan. For the past 2.5 months Uskiy Puhco, a participant in the NCLUP process, has requested a copy of Draft #3. However, for reasons that are unclear, the Saskatchewan government has declined to provide Draft #3. We regret this situation, but we believe that a review of Draft #2 will be extremely helpful.

Attachment 8: INTERPRETIVE MAP SET FOR NCLUP AREA (4 maps) (Saskatchewan Environment, 2006) provides the maps that accompany the *Saskatchewan Environment* plan.

Attachment 9: PINK LAKE 3 REPRESENTATIVE AREA—DISCUSSION DOCUMENT (Saskatchewan Environment, December, 2005) provides the rationale for the government's delineation of the Pink Lake representative area (i.e. protected area) within the NCLUP area.

Uskiy Puhco and Silva ask that you use information from the nine attachments to provide review comments and to compare the two plans based on the key questions below. While we ask that each reviewer address the review and comparison of the plans through answers to the key questions, we also encourage you to provide additional comments and comparisons that you feel would be useful for improving the plans.

The key questions that we would like feedback on are:

1. How well does each plan follow the principles, as described in the scientific literature, for development of an ecosystem-based conservation plan?
2. How well does the approach used in reserve design in each plan follow the scientific literature that describes ecosystem-based approaches to conservation planning?
3. Given the information provided, how well do the various reserve designs accomplish protection of ecological integrity (i.e. protection of ecosystem composition, structure, function, and processes) at the large landscape scale? In answering this question we ask that you include reference to maintaining specific ecological processes, and providing for the persistence of focal species of your choice.
4. How well does each plan provide for the maintenance of resources necessary to maintain subsistence economies and non-timber-resources?
5. What key additional information is necessary to refine and improve confidence in the plans to provide for protection of ecological integrity, as the foundation for conservation of biological diversity and development of ecologically and culturally sustainable economic activities?
6. We will collate and summarize all of the responses from you and other reviewers to develop an action plan to improve conservation and foster appropriate development for the North central Land Use Plan area. If you

would like to receive a copy of the peer review summary, please advise me, and I would be happy to provide this document to you, once it is completed.

We would appreciate receiving your review by August 31, 2006. Your comments may be mailed to: Herb Hammond, Silva Forest Foundation, P.O. Box 9, Slocan Park, B.C. V0G 2E0, or sent electronically to me at: hhammond@netidea.com.

Thank you again for your participation in this peer review. Both Uskiy Puhco and Silva look forward to receiving your comments and to using your feedback to assist in defining conservation and ecologically responsible use of the boreal forests within the North Central Land Use Plan area.

If you have any questions regarding this peer review, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read 'Herb Hammond', with a large, stylized flourish at the end.

Herb Hammond

cc: John Paul McKenzie, Uskiy Puhco, Grandmother's Bay
cc: Colleen Rickard, CPAWS, Saskatoon

APPENDIX 2

Uskiy Puhco
c/o John Paul McKenzie
Box 38, La Ronge, SK
S0J 1L0

Dear Sir/Madame,

On behalf of the group called Uskiy Puhco, I would like to introduce myself and my colleagues in Uskiy Puhco.

Uskiy Puhco is a group of people from five Woodland Cree and Metis communities in northern Saskatchewan, and three Saskatchewan conservation and recreation groups. About five years ago, we were invited by the Saskatchewan government to participate in a land use planning process to develop the North Central Land Use Plan (NCLUP). As its name suggests, the NCLUP area is located in North-Central Saskatchewan. It covers about 3 ½ million hectares of boreal forest, stretching roughly from La Ronge to Key Lake.

From the outset of this planning process, it has been our desire to see a plan that focuses on keeping our land healthy so that both our culture and local employment opportunities will be long-lasting. In order to help with this, members of Uskiy Puhco gathered a wide range of information about the forest, about human interests in the area, and about new ways to understand and use information in plan development.

Herb Hammond from the Silva Forest Foundation was invited by government to give a presentation to the planning team on ecosystem-based planning. Many of us at the planning table liked what Mr. Hammond had to say, and invited him to work with us to help develop an ecosystem-based plan. The results of this work are now contained in the report entitled *Towards Ecosystem Based Conservation Planning in the North Central Plan Area* (for the sake of brevity, we often refer to it as the Uskiy Puhco report). Information in this report has been presented to the government, to Chief and Council of the Lac La Ronge Indian Band, and to members of the NCLUP planning table.

In winter/spring 2006, the Saskatchewan government released a draft land use plan for the NCLUP. This plan is quite different than the Uskiy Puhco work because it focuses on designating areas for commercial economic development (i.e. forestry and mining). Government assures us that its plan provides the structure and land use recommendations that are needed to take care of our land and the long-term jobs we depend on. Based on our work with Silva and our review of the government's plan, it appears to us that the government plan lacks the information and approach needed to protect our land.

It is very important to us that our land stays healthy, not only for today, but for generations to come. We would like to obtain advice from people who have familiarity

and expertise on what is needed to take care of northern forests and how to use the land carefully for human needs. We are therefore writing to ask you for your review and comparison of the two documents developed for the North Central planning area – that is, the Uskiy Puhco report and the government’s draft land use plan.

Mr. Hammond and the Silva Forest Foundation are still working with us, and they have prepared a letter to you as well, that outlines questions that we are seeking answers to. We would appreciate that you direct technical questions to Mr. Hammond and that you send the results of your review directly to him.

Thank you for assisting us.

Sincerely,

John Paul McKenzie, Chair

c.c. Herb Hammond, Silva Forest Foundation

Uskiy Puhco Members:

- George Roberts (Grandmothers Bay)
- George Smith (Pine House Lake)
- Charles McKenzie (Brabant Lake)
- Thomas Ratt (Hall Lake)
- Alan Quandt (La Ronge)
- Dave Bober (Saskatchewan Canoe Association)
- Colleen Rickard (Canadian Parks and Wilderness Society)
- Kay Willson (Saskatchewan Environmental Society)
