PUBLIC SUMMARY OF BASKAHEGAN MANAGEMENT PLAN 2016

1) Management Objectives

Baskahegan's approach to forest management is best summarized by its articulation of its Mission, Objectives, Principles and Implementation. Drafted in the early 1990s and revised since, these delineate, in summary form, the values and goals which guide the Company.

Mission Statement

Through a Dedicated Commitment to Long-Term Stewardship,
to Develop the Natural Potential of Baskahegan's Forest
to Produce Quality and Value
for Present and Future Generations

Management Objectives

Optimize the production of high-value timber products
Build sustainable future productivity while generating respectable profits
Protect ecological and environmental integrity
Protect and enhance aesthetic and recreational values

Guiding Principles

Conduct all relationships with integrity and dependability
Seek to understand and respect nature's laws
Enhance timber production while conserving other forest values
Provide customers with quality forest products, timely delivered
Encourage the growth of our people through continuing education
Be attentive to the needs and concerns of local communities
Protect public values and accommodate appropriate recreational use

Implementation Actions

Utilize long-term forest planning to define an optimally sustainable harvest pace while maintaining flexibility to respond to market conditions
Harvest stands in ways that enhance the long-term value and productivity of the forest
Realize the best value for products sold
Build long-term partnerships with contractors to provide cost-effective, safe and environmentally sound harvesting services
Build and maintain a quality road network throughout the forest
Refine and document a full understanding of Baskahegan lands
Protect environmental and ecological integrity in the forest
Enhance forest aesthetics
Continuously measure progress toward goals

2) Forest Certification

In 2004, Baskahegan became certified as well-managed by Scientific Certification Systems under Forest Stewardship Council® **(FSC-C021174)** Standards for the Northeast Region of the United States. The Company has long pursued environmental and economical sustainability, despite short-term economic pressures that militate against such goals. It welcomes the emergence of cost-effective systems of forest certification that highlight and encourage similar efforts by landowners.

Baskahegan heartily endorses the principle of third party audits of forest management to assess economically and ecologically sustainable forest management. Baskahegan chose to become certified under the aegis of the Forest Stewardship Council in 2004, believing that this system has the most rigorous requirements, particularly with regard to ecologically-based forestry.

Specifically, the Company endorses the Principles and Criteria of the Forest Stewardship Council, will work to ensure Baskahegan's compliance with the, and will publicly support the goals of the FSC®.

3) Description of Forest Resources to be Managed

Land Use and Ownership

Baskahegan Company, founded in 1920, currently owns and manages 117,843 acres of forestland in Maine.

These lands are found in twelve townships, half of which have some form of self-government and half are part of Maine's Unorganized Territory. While most of the acreage lies in northern Washington County, the lands in Bancroft and Orient are found in southern Aroostook County, and the lands in Patten and 3 Range 7 are found in Penobscot County, approximately seventy-five miles northwest of the main ownership.

All of Baskahegan's lands are owned in fee with deeds dating back to 1920 in most cases. In 1995, using proceeds from the sale to the State of a Conservation Easement along sixteen miles of shorefront on Spednik Lake, Baskahegan purchased roughly 10,000 acres of additional forest lands contiguous to its main ownership. The Company purchased an additional 18,000 acres in 2012. All of the Company's lands are open to the public for traditional recreational use.

Description of Baskahegan Lands

With the exception of the lands in and near Patten, the Baskahegan forest is situated in the Maine/New Brunswick Lowland biophysical region (McMahon 1990). The majority of this land is in the Baskahegan watershed, which feeds the Mattawamkeag River, a tributary of the Penobscot. The remaining land lies in the St. Croix River watershed. Together these lands are within and just outside of what is, in effect, a saucer shaped

region, which vairies in elevation from 480 feet above sea level in the center to 1,200 feet along its rim formed by the summits of low mountains.

Within this saucer, conditions range widely. The defining feature of the landscape is Baskahegan Lake, which is 7,145 acres in size. Also notable is the Crooked Brook Flowage, an impoundment created by a dam in Danforth, which provides excellent wading waterfowl habitat and 23% of the high-value wetland in Washington County. Peat bogs occupy a relatively high proportion of the landscape, roughly ten percent.

Rising in elevation from these wetlands and water bodies are lowland sites that support softwood forests of larch, cedar, black spruce and some red spruce. On neighboring better-drained softwood sites, red spruce, white pine, balsam fir and hemlock are the predominant species, often mixed with red maple and white birch. Deeper, richer sites usually located on hills of low to moderate elevation are forested with mixed northern hardwood species including sugar maple, yellow birch, ash, beech and red maple. In some cases these are mixed with a scattering of red spruce, pine and hemlock.

Most of the remaining land in the contiguous ownership is mixed wood forest with a softwood to hardwood ratio somewhat dependent on soil depth and fertility (hardwoods increasing in abundance as soil depth and nutrient richness increase). Limited stands of shade-intolerant poplar and white birch, as well as nearly pure stands of red pine constitute the remainder of the Baskahegan forest in the Brookton area.

The Patten and 3 Range 7 lands to the northwest fall in the Aroostook Hills biophysical region and are characterized by deep, well-drained hardwood sites. These are among the Company's most productive sites.

Environmental Limitations

The Baskahegan lands present few environmental limitations to forest management. The high percentage (19%) of bog and wetland makes access more difficult. Rare wetlands, such as those documented in Davis & Anderson's *The Eccentric Bogs of Maine*, are reserved from management and thus protected from management impacts. In a few cases (less than one percent of the acreage), slopes are too steep or ground is too bouldery to allow for timber harvests.

Socio-Economic Conditions

The Company is a founding member of the Maine Forest Products Council's "Project Landshare," making its lands available for responsible recreational use. Company lands provide hunting and fishing opportunities for local residents as well as the clients of numerous nearby commercial sporting camps.

In addition to allowing traditional public use, the Company operates a limited camp lease program and works with the Maine Forest Service to provide a campsite for public use on the East Branch of the Penobscot River. The International Snowmobile Trail crosses Company lands, and snowmobiles use other parts of the forest as well. Through a permit

system the Company allows use of its lands for bear baiting, wreath tipping and firewood gathering.

Harvest operations (cutting and hauling) and road building on Company lands provide steady employment for three logging contractors of various sizes. The Company's largest contractor has worked on Baskahegan land since the early 1970's. Baskahegan currently sells wood to twenty-four mills, all but two of which are located in Maine.

Adjacent Lands

Nearly all of the undeveloped land surrounding Baskahegan's ownership is owned by commercial forestland owners of various sizes. In recent decades, there have been significant changes in who owns these lands. Prior to the 1990s, virtually all these lands were held by the paper industry. During the 1990s, most of these lands were purchased by Timber Investment Management Organizations (TIMOs), some of which have since sold their lands (in smaller lots) to logging contractors or recreational buyers.

In the organized towns there are areas of concentrated settlement and commercial activity. Routes One and Six bisect the majority of the ownership, providing easy access to commercial centers like Houlton, Lincoln and Calais.

4) Silvicultural Systems based on the Ecology of the Forest and Information Gathered through Resource Inventories

Baskahegan's harvest operations are designed to enhance the long-term value of the forest. Foresters choose the silvicultural method that best supports the achievement of goals for stand development and regeneration, and then select the harvest system best suited to stand and site conditions. Current operations are focused on the forest that regenerated in the first decades of the 20th century. The silvicultural goal in these stands is to grow high quality trees of large diameters in the overstory while regenerating the 21st century forest in their shade.

The Company typically prescribes variations of the shelterwood system for most softwood, mixedwood and even some hardwood stands. In each harvest, the goal is to remove poor quality trees of lower value or shorter life spans, thus devoting the growing space to higher quality individuals of longer-lived species. The resulting creation of small openings in the canopy mimics natural mortality patterns in the Acadian forest. As residual trees continue to grow in diameter and value, the light from these openings penetrates to the floor of the forest and regenerates preferred species in dappled shade. The final harvest is typically irregular shelterwood, with Company foresters prescribing the retention of mature pine, hardwood or other species to maintain a measure of vertical diversity.

Harvest blocks are small, averaging less than twenty-five acres. Harvest operations are distributed across the landscape to create a mosaic of stands in different stages of development along each road system. This provides a diversity of habitat conditions

across the landscape, facilitates migration of species from one forest age class to another, and enhances the aesthetics of the forest.

5) Rationale for Rate of Annual Harvest and Species Selection

Baskahegan sets its Annual Allowable Cut by species and product (logs and pulp) following an area regulation model. Roughly one thousand acres are regenerated each year, with up to twice that amount treated with improvement cuts. Based on experience, this translates into a volume measurement against which a sustainable harvest can be measured. In addition, the Company estimates annual growth based on its own measurements and data from other forest land in the region. It then uses the Woodstock model as a further check against both these systems to assure that harvest does not exceed the capacity of the land to perpetually grow trees of high quality.

In every partial harvest, quality trees of long-lived species are favored as residual trees, and poorer quality trees are removed to provide growing space for the eventual crop trees.

6) Provisions for Monitoring of Forest Growth and Dynamics

Baskahegan makes extensive use of its ArcView GIS to track growth and yield and stand development. Twice a year the GIS is updated to reflect recent management activities. In 2009, the Company completed a forest-wide "operational typing effort" in which foresters visited every potential harvest block to determine and document species composition of the overstory, existing regeneration, preferred next entry and harvest system, selected late successional/old growth indicators, and other pertinent information.

The Company keeps careful track in its GIS of acreages by harvest treatment. While the average acreage of overstory removals has remained relatively constant over the last two decades, , first entry partial cuts have varied from an average of 648 acres/year in the first half of the 1990s to a high of 1,119 in 2002, and back down to an average of 439 acres/year since 2008. The larger harvests in the middle period were due in large part to increased efficiency of the Scandinavian processors used by Company contractors. In addition, Baskahegan is now reentering for a second partial harvest those stands that were first partially cut from below in the 1980s. These second entry partial cuts have increased from zero acres in the 1990s to a high of 1255 acres in 2012. Since 2008, average has been 779 acres for second entry partial cuts.
The Company carefully tracks its harvest by species and product and compares this to the Annual Allowable Cut described in Section 4, above. Another metric tracked by the Company is the inventory by total volume and percentage. A timber inventory is conducted every ten years to monitor the effect of forest management activities on merchantable timber volumes.

Baskahegan has regularly created its growth and yield assumptions based on data collected from its own forest and a review of publicly available data. A cooperative project with an honors thesis student at the University of New Brunswick developed

growth curves calibrated to the Baskahegan forest, which are now utilized in its Woodstock model.
The Company likewise has studied the results of different harvesting methods by measuring the growth and species makeup of residual stands. In a study from the early 2000s, it found that cuts by hand crews in S3A stands resulted in a species composition of, among others, 32% red spruce, 19% hemlock and 15% hardwood. When processors did the harvesting, a residual stand was populated with 51% spruce, 10% hemlock and 8% hardwood—a superior silvicultural result. This has led to an increase in cutting by processors and forwarders on the acreage (another carefully monitored trend) from 30% in 1989 to 90% today.

The Company's accounting and trip ticket system is structured to tie harvest volume back to the stand of origin, allowing it to calculate and refine average yield by harvest and stand type over time. This information is then used in subsequent runs of the Woodstock growth and yield model.

7) Environmental Safeguards based on Environmental Assessments

The State of Maine has an extensive system of regulations to protect environmental essentials such as clean water and an array of wildlife habitats. It is company policy to meet or exceed such requirements in all its operations. Baskahegan favors cut-to-length Scandinavian processors because of their light footprint. It requires its contractors to utilize Best Management Practices in road building and harvesting. It puts a priority on matching harvesting equipment to soil conditions, and Company foresters carefully monitor operations during wet periods to avoid rutting or other damage to the soils. Prescriptions for riparian zones exceed state standards and favor the protection of these important wildlife corridors and habitats.

8) Identification and Protection of Rare, Threatened or Endangered Species

The Company supported the Maine Natural Areas Program (MNAP) to survey its acreage for occurrences of rare, threatened or endangered species along with other special features. MNAP scientists screened aerial photos and stand maps to identify all areas with the potential for such occurrences. They then visited these sites and shared their findings with the Company. In addition, all Company foresters have been trained by MNAP to know which rare, threatened or endangered species occur in the Baskahegan region and to proactively identify and protect them in the course of pre-harvest layout.

9) Maps describing the Forest Resource Base including Protected Areas, Planned Management Activities and Land Ownership

Baskahegan uses ESRI's Arcmap GIS to manage the data associated with the Company's land holdings. The GIS database contains information on each forest stand, which is updated as stand conditions are altered. This database and its associated maps are used for planning purposes and to tie harvest volume to specific stands and acres.

In addition, separate layers in the database record the occurrence of regulated special areas such as eagle nesting sites and deer yards, unregulated but important features such as vernal pools, ephemeral streams, seeps, springs, archaeological sites, along with parcel boundaries derived from the real estate deeds by which the Company acquired the acreage.

10) Harvest Techniques and Equipment

The Company relies on Scandinavian style cut-to-length processors. These machines fit Company objectives closely. The high floatation of these machines and their creation of in-woods trails of treetops and limbs prevent rutting and erosion. Their nimbleness prevents damage to residual trees. By carrying rather than dragging logs to roadsides, forwarders reduce damage to residual trees, prevent scouring of pre-existing regeneration and greatly improve aesthetics. The Company's use of forwarders and processors has grown from 30% of acres treated in 1993 to 90% today.

11) Rationale for Areas Reserved from Harvesting

The Company strongly supports the creation of ecological reserves to serve as refuges for species or processes that may be compromised by forest management and as unmanaged baselines for managed areas. The Company believes that the responsibility for providing such non-commercial land uses properly belong with the public and non-profit sectors. Accordingly, Company's leadership has worked actively to build the capacity and commitment of these sectors to implement this part of their missions.

There are several reserve areas established by public and private conservation landowners in the cross-border eco-region (called the "Maine-New Brunswick Lowlands Biophysical Region" on the Maine side and the "Valley Lowlands Ecoregion" in New Brunswick). On the New Brunswick side of the St. Croix watershed, the Province has established a 63,940-acre reserve (with frontage on eleven miles of Spednik Lake) and the 9,855 Canoose Flowage Reserve. The Spednik reserve lies on similar soils to those at Baskahegan with elevations that range from spruce/fir-dominated lowlands to tolerant hardwood-dominated slopes and ridges. Forty percent of the Canoose Flowage Reserve is wetland, with the rest being a mixture of low elevation forests.

On the Maine side of the border, the Bureau of Parks and Lands has established the 3,870-acre Duck Lake ecological reserve, which encompasses 1,200 acres of wetlands. The Downeast Lakes Land Trust has established a complementary reserve of 3,560 acres adjacent to the Duck Lake Reserve. Approximately 2,200 acres are upland forest, with the rest being wetland. In addition they have established a neighboring late-successional area of 3,700 acres, which will be managed with uneven aged systems to produce a late successional species mix of trees to 120-150 years of age,

On its own lands, in addition to protecting nationally significant wetlands, the Company has reserved from harvesting 1,357 acres of upland forest in various locations. In addition, in 2005, the Company employed the Maine Natural Areas Program to identify ecological types that were underrepresented on nearby public and private conservation

lands. MNAP identified a paucity of red pine stands, and the Company then created Red Pine RSAs to provide additional protection for this regionally rare forest type on Baskahegan lands. These acres were set aside in recognition of the appropriateness of leaving some lands in their natural state, free from the direct impacts of forest management.

In 2006, a survey was conducted to identify stands possessing exemplary late successional attributes using an LS Index developed by John Hagan and Andy Whitman of Manomet. This survey resulted in reserving 385 acres of various stand types in order to preserve epiphyte and other mature forest habitat.

12) High Conservation Value Forests

High Conservation Value Forest (HCVF) is forest area that possesses notable ecological or social attributes that merit conservation. In an inventory carried out on Baskahegan lands in 2004, the Maine Natural Areas Program recommended special protection of Big Bog and surrounding wetlands, including Crabtree Bog and Caribou Bog, a complex which totals some 1685 acres.

Eccentric bogs are uncommon types of patterned peatlands, with only a handful of sites known in the State. At nearly 1700 acres, Big Bog wetland complex is one of the largest and merits an occurrence ranking of "A" (Davis & Anderson, 1991, *The Eccentric Bogs of Maine: A Rare Wetland Type in the United States*, Orono: University of Maine).

Baskahegan worked with The Nature Conservancy (TNC) to establish a protection regime for this rare ecological occurrence with a goal of conserving and maintaining the natural communities of Big Bog and protecting the rare plant habitats located within and around the complex. Types of natural communities found at Big Bog include eccentric bog, domed bog and kettle hole bog ecosystems, including forested bog, dwarf shrub bog, peatland lagg community, acidic fen community, moss lawn bog, sedge meadow and graminoid swale communities.

Baskahegan and TNC agreed that the populations and communities could be protected within the context of a working forest. Baskahegan agreed to manage the premises in accordance with the advice and consultation provided by TNC. Together, they identified where to locate a road across Big Bog to minimize disturbance of wetland function, and the Company constructed the road according to standards identified by TNC. For five years, Baskahegan monitored the water levels on either side of this road and reported results to TNC on an annual basis. The water monitoring showed no change in hydrology that, in the determination of TNC, could lead to significant changes in the nature of vegetation or ecosystem function appurtenant to the road.

In the area around Big Bog Peatland Complex, Baskahegan maintains a forested buffer to protect the hydrology of the system and to prevent impacts from human activities. Compatible uses include recreation and timber management activities, but not pesticide applications or the construction of buildings. The buffer is managed to insure the wind

firmness of the residual stands while creating openings sufficient to establish and develop natural regeneration. At no time is the overstory removed before the establishment of a well-distributed stand of regeneration at least five feet in height. This regime provides cover for wildlife and, by minimizing the exposure of bare ground to rainfall, helps to prevent siltation of the water. No more than 30% of the buffer area will have its overstory removed in any ten-year period.