Stewardship of Mountain Ecosystems
BEST PRACTICES FOR SUSTAINABILITY

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CREDITS

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I BACKGROUND

The BCHSSOA represents 29 independent operating companies in Western Canada, each offering helicopter skiing, snow-cat skiing and/or helicopter hiking to its guests. These businesses range from large to small, and from well established, with more than 30 years of experience, to those that have only recently begun their operations. Helicopter and snow-cat skiing is a complex business that can often involve ground transportation, aviation, accommodations and food services, as well as fuel management and sophisticated mountain operations.

Over the past five to ten years, operators and associations throughout the international tourism industry have been developing and implementing their own unique "best practices"[1] and certification programs. These programs include, "Green Globe 21", "Pacific Asia Association Code for Environmentally Responsible Tourism", "Agenda 21 for Travel and Tourism"[2], "Sustainable Slopes (National Ski Areas Association)", and "UNEP's Tour Operators Initiative for Sustainable Tourism[3]". Many of these standards were initially developed within the hotel and hospitality industry (one of the first in Canada was CP Hotel's Green Partnership program), but more recently the approach has grown to include cruise and port operations, as well as airlines and tourism operators. Closer to home, the Oceans Blue Foundation has begun to define and promote "best practice guidelines and standards" on the BC coast, and the BC Wilderness Tourism Association also developed a "Code of Conduct." A growing number of BC provincial government agencies have also shown interest in this concept.

Many of these current programs have focussed on environmental issues, but there appears to be a growing understanding of the need to broaden the sustainability focus to include both social and economic commitments.

In light of this growing focus on sustainability, it is critical that BCHSSOA members not only become more formally involved, but they in fact, take a leadership role in setting priorities and making commitments to leading edge practices and standards. These commitments are already evident in many cases, as Association members have already established themselves as stewardship leaders within the tourism industry. However, regardless of their current level of engagement with sustainability frameworks, all members have expressed an interest in a collective commitment to refining, extending and formalizing these leading standards.

Therefore, it is becoming increasingly important that the industry's commitment to these principles and practices be clearly documented and actively promoted. This document is the first attempt to compile, elevate and document these practices.

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[1] Best Practices (BPs), Best Management Practices (BMPs) or Best Practices Environmental Management (BPEM) are normally defined as the most effective environmental management practices which are either (a.) currently in use in any company within the sector; or (b.) could reasonably be adopted in the near future by at least one company within the sector. These are operational tools or practices that allow tourism operators to meet a range of sustainability management objectives.

[2] World Travel & Tourism Council, World Tourism Organization, Earth Council; 1999

[3] World Tourism Organization

II PURPOSE

Through the ongoing efforts of the BCHSSOA's Best Practices for Sustainability Committee, and throughout the evolution and development of this manual, the BCHSSOA has continually demonstrated its commitment to leading sustainability management practices. It is, therefore, the purpose of this manual to further this commitment by clearly and specifically expressing the Association's pledge to environmental stewardship, economic integrity and community responsibility.

It is also the intent of the BCHSSOA to present these best practices in a manner that:

- provides an explanation of the ways in which our industry continues to act on its long-term commitment to environmental, social and economic sustainability
- acts as a set of guidelines within which individual BCHSSOA members will develop their own individual corporate best practices
- acts as a link to the relevant principles, standards and certification programs of agencies and associations internationally, nationally, provincially and locally
- outlines the best practices for sustainability to which BCHSSOA members will commit
- highlights opportunities for BCHSSOA members to work collaboratively with provincial and local government agencies, communities, and other organizations with an interest in sustainability
- forms a document that can, and will be, regularly up-dated to reflect changes in knowledge, research, legislative or regulatory direction, and
- forms a public document that can be shared with communities, associated organizations, and governments at all levels, as well as with the media.

III WORKING TOWARDS SUSTAINABILITY

Sustainability can be defined as a state of dynamic equilibrium achieved by taking responsibility for balancing long term economic, environmental and social health - for our communities, our world, and ourselves. Sustainability brings to light the connections between natural and human communities. It implies evolving our local and global civilization in a manner that makes sense socially, ecologically and economically. It involves treating our world as if we intend to stay. Consistent with this accepted framework, the following best practices are divided into the following three subsections:

- Environmental Sustainability
- Social Sustainability, and
- Economic Sustainability

It should however be noted that these three subsections are not dealt with equally. In part, this is due to our strengths and expertise as both an organization and as a committee. But, more directly it reflects the current state of the evolution from environmental responsibility to a more encompassing awareness of the interrelationships between the three pillars of sustainability. As such, this document reflects a more refined and directed approach to the environmental components of this manual.

Economic sustainability within this report revolves around the issues of integrity, ethics and legal responsibility. The specifics of fiscally sound management practices are understood to be unique and fluid aspects of operating a successful and thriving business, and are not included within this report. For the reader who would like to explore more of the economic impacts of this industry on local communities and senior government tax bases, please refer to*, "Social and Economic Benefits of the Helicopter and Snowcat Industry, BCHSSOA, 2002".*

This document's treatment of the theory and practice associated with social sustainability provides a solid foundation for building long-term, prosperous and enriching relationships with both local communities and operations' staff. Although this section is somewhat less developed that the environmental section, we feel that it does include strong and compelling directions for the Association members to improve their relationships with local staging communities. As all communities in which we operate have distinct characteristics, unique histories and diverse priorities, the best practices presented in this section allow for more flexibility and increased creativity when implementing the social sustainability strategies most appropriate to their particular community and regional relationships. Similarly, the move towards sustainability must acknowledge that the social leg of the sustainability stool is the most iterative and dynamic component of an overall sustainability strategy. If it is to be truly meaningful it must include the ability to grow, change and mature as the relationships between operators and communities evolve.

As an Association, our membership has endorsed the following policy to guide our operations towards sustainability.

- BCHSSOA Policy on Sustainability -

As a member of the BC Helicopter and Snowcat Skiing Association, each company will:

- strive to act as an environmental steward of the area(s) in which it operates
- constantly strive to improve its environmental performance in existing and new operations
- support and be accountable to the communities in, or adjacent to the areas in which it operates
- develop a sustainability policy and a set of best practices that are consistent with those of the BCHSSOA, but are specific to the unique realities of their individual businesses
- ensure that each employee of the company is aware of the company's sustainability policy and best practices, and each employee understands their role in ensuring that they are implemented
- operate in a manner that is in compliance with all federal, provincial and local government environmental statutes and regulations
- support environmental research and education programs that will result in improvements in its environmental performance
- incorporate new research and information into its operations as it becomes available
- work with government agencies, other tourism organizations and operators, as well as other local stakeholders to ensure that its operations are sustainable for the long-term

IV ENVIRONMENTAL SUSTAINABILITY

IV.1 ENVIRONMENTAL POLICES

As members of the BCHSSOA, we recognize that the Provincial Crown lands on which we operate are unique treasures. They support diverse and often sensitive alpine and sub-alpine ecosystems; they offer spectacular opportunities for world-class recreation; and they provide us with a unique opportunity to share mountain experiences with guests from all over the world. We also recognize that the rights that we have to operate our businesses on these lands come with the moral, legal and ethical responsibility to act both as diligent environmental stewards, and as good corporate citizens.

Through the creation of this policy and the associated best practices for sustainability, we are making a commitment – in a very public way – to act on these responsibilities. Owners, managers and employees take our responsibilities very seriously and we know that our guests expect us to be environmentally responsible businesses, capable of effectively managing these areas for many decades to come.

It should be recognized that the BCHSSOA includes a range of operations that includes those that have only recently been established as well as those that have been in operation for many decades. With this in mind, the BCHSSOA understands that there will be a range of capabilities among our individual member companies with respect to the timeframe by which they will be able to attain compliance with the Association's best practices. Regardless, it is expected that each company will implement actions and plans that will allow them to meet or exceed these standards within a reasonable period of time.

Policy on Operating in Mountain Ecosystems

As members of the BCHSSOA, we understand that we operate in mountain ecosystems that are home to unique plant and animal species. Our operations can be found in the alpine and sub-alpine components of the Alpine Tundra, Engelmann Spruce-Sub-alpine Fir, Interior Cedar-Hemlock, Mountain Hemlock and Montane Spruce biogeoclimatic zones throughout British Columbia.

We recognize that the harsh biogeoclimatic conditions that play a major role in these ecosystems make them less durable and less resilient than other zones within the province. In particular, these areas - which normally occur at relatively high elevations - experience short growing seasons followed by deep snow, low light levels and significant freeze-melt cycles.

As such, wildlife has the toughest time in the winter months, while mountain vegetation is most at risk during the short summer growing season. While the majority of our member's operations occur primarily during the winter months, these best practices have been developed to address issues in all seasons.

Mountain ecosystems also support a growing level of use by all recreationists – both commercial and non-commercial. As a result, we intend to encourage other tourism operations, non-commercial recreation groups and governments to adopt and improve upon the practices included within this manual.

Finally, mountain ecosystems are the natural foundations for our operations and we are committed to practices that will ensure their ecological viability long into the future. While the following best practices are meant to apply to all of our members, individual companies will be encouraged to develop their own specific practices consistent with these standards.

The environmental component of the *BCHSSOA Best Practices for Sustainability* is divided into the following seven aspects:

1. *Wildlife*
2. *Vegetation Communities*
3. *Fisheries and Watersheds*
4. *Waste Management*
5. *Fuel Management*
6. *Forest Harvesting and Trail Construction*
7. *Energy Innovation*

However, due to their specific and direct relevance to the unique nature of mountain ecosystems, Wildlife, Vegetation Communities and Fisheries and Watersheds will be dealt with first.

IV.2 WILDLIFE BEST PRACTICES

Background

It is our belief that managed properly, commercial recreation has a limited impact on wildlife habitats and values. Further, commercial recreation operators acutely recognize the importance of protecting the environments within which they earn their livelihoods. The limited nature of commercial recreation's impact is due in part to:

- a relatively low level of use on the landscape
- the ability of operators to develop an intimate understanding of wildlife in the operating areas
- the ability to make immediate adjustments to unforeseen variables
- the fact that all users recreate in these areas under the supervision and direction of a trained guide, and
- the fact that development of permanent facilities is normally very limited

As previously mentioned, the majority of our member's activities occur during the winter months when many animal species have migrated out of the alpine area or have become inactive. Remaining wildlife species have adapted to surviving the many challenges encountered during these winter seasons. The inclement conditions do however, generally bring about added stress for these species. This can be due to limited foraging opportunities, reduced food quality, reduced mobility as well as the general strain of operating on a limited energy budget. Human activity within winter ranges has the potential to exacerbate these stresses to wildlife. In fact, if the contact is chronic, it may even prevent certain species from taking advantage of foraging opportunities, may reduce the species' energy stores, and may even ultimately lower that species' fitness. It is therefore important that commercial recreation operators identify the assemblage of animals found within their operating areas with particular attention to those wildlife species that may be the most sensitive to our activities.

IV.2 (a) Baseline Information

An important step in dealing effectively with wildlife values is to develop a thorough understanding of the species and habitats that occur within the operating area. This includes the diversity and ecology of the species in the area, as well as their possible, and when information is available, actual distribution across the landscape. Particular attention must be paid to any specific habitat components that may be of critical importance to wildlife as well as the particular times of the year when the species may be more at risk of disturbance. Examples of specific components may include den sites, winter ranges, natal areas or mineral licks.

Members should pay particular attention to implementing these best practices for any red or blue listed wildlife species as defined by BC's Conservation Data Centre (CDC) or the Committee on the Status of Endangered Species in Canada (COSEWIC). This commitment is particularly important in light of the recent passage of the Species at

Risk Act (SARA). Members should also be aware of species occurring within tenure areas that might be considered of regional importance. Species that may fall into this category tend to be native, regularly-occurring animals that are not considered at risk provincially, but are considered to be vulnerable to habitat alteration associated with local resource extraction and development pressures. These species may also be considered to be of particular concern based on current status, or status trend findings.

IV.2 (b) Inventory and Monitoring

Research and monitoring programs should be implemented on a variety of wildlife species. Emphasis in this respect should be concentrated on those species considered to be sensitive to commercial recreation operations. Data collected on seasonal habitats, migration routes, nesting or birthing sites, as well as the timing of animal activities is integral to mitigating and avoiding the potential impacts of commercial recreation operations on wildlife populations.

In order to build an understanding of how animals use the operating areas over time, members should implement monitoring programs that employ a consistent and detailed reporting format. At minimum, these reports should include: date; species and number; location (using UTM co-ordinates); type of habitat; and an appropriate level of comment on the observed animal behaviour. The Association has developed a standardized wildlife reporting format that can be effectively used for this purpose. (for reference, this format is included as Appendix 1)

These monitoring programs should also allow the company to identify and record:

- the kinds of operational practices and decisions they have used to avoid wildlife
- the type and frequency of interactions they do have with wildlife
- where some form of interaction does occur, the kinds of behaviours exhibited by wildlife both before, and after, they make any operational changes (Penner, 1998, provides useful categories for these observations)

Members should also work with government and other area stakeholders to undertake inventory and monitoring programs that will provide an objective assessment of the regional distribution trends. This collaboration should concentrate on the wildlife species throughout the area that are of greatest management concern.

IV.2 (c) Avoiding Disturbance of Wildlife

The key objective for these wildlife best practices is to minimize - if not to avoid - the potential disturbance of wildlife within our operating areas that may occur as a result our operational activities. For the purposes of this section, a “disturbance” refers to any negative effects on wildlife that cause the animal(s) to change their behaviour, or alter their use of the habitat.

The Disturbance Avoidance Matrix (Table 1) describes the operational practices that are considered to be minimum BCHSSOA standards for avoiding the disturbance of wildlife.

The practices described in this table relate to the access of operating areas by mechanized or non-mechanized ground transportation, by aircraft, or during any related construction activities. The practices in the matrix should also be relevant for commercial, non-commercial and government activities.

These practices are based on an adaptive management approach with a focus on habitats occupied by wildlife (refer to Figure 1.). In essence this means that members will outline the practices that they use in all areas of their operations, and then detail how they will modify those practices when they become aware of, or suspect, that animals are occupying habitats that may overlap with their recreational activities. To this end, operators will commit to working with government and/or consulting biologists to ensure that their operational practices are consistent with the best practices included within this manual.

Figure 1. Proposed Structure for Adaptive Management

IV.2 (d) Wildlife Viewing

Association members will not use helicopters or snow-cats to actively view wildlife. In those situations where operators may inadvertently view wildlife from the ground as an ancillary part of on-going winter or summer activities, it will be done in a manner that does not result in changes to normal wildlife behavioural patterns or their use of habitat. Moreover, the BCHSSOA will continue to work in collaboration with the BC government to co-ordinate common standards for wildlife viewing best practices.

IV.2 (e) Staff Training

Although little information exists on the direct and indirect impacts of recreation on most wildlife species, members should establish a thorough understanding of relevant species biology, particularly as it concerns winter ecology. Through literature reviews and networking with colleagues, peers and government officials, members should implement an educated approach to operating in mountain ecosystems. Members are encouraged to share information and ensure that all employees are given the information required to make appropriate judgements and decisions while in the field.

In conjunction with government and/or consulting biologists, the member's guides, pilots, snow-cat operators and all other relevant staff should be trained annually on:

- the distribution and ecology of key wildlife species within the operating area
- company procedures and management principles designed to avoid the disturbance of wildlife
- success or failure of previous year's efforts to avoid disturbances, as well as any amendments to procedures made as a result, and
- the results of any newly available research or inventories

Records of attendance, dates and nature of the training will be collected and recorded by each operator. To facilitate this training, it is the intent of the BCHSSOA to develop a standardized, government-approved training program that will be available to all member operators.

IV.2 (f) Disturbance Avoidance Matrix

TABLE 1. Disturbance Avoidance Matrix

TYPE OF ACCESS	CATEGORY OF WILDLIFE	
	Wide-Ranging Species [1]	**Site-Specific Species [2]**
Non-mechanized ground access (foot or ski)	❑ Use inventory and sighting information to identify habitats where animals are commonly, or occasionally sighted. Ensure that all guides can identify these habitats, and are fully aware of their importance. ❑ Use regular and predictable patterns for travel. ❑ On a daily basis, use information from previous day's observations to plan subsequent travel routes to further minimize overlaps with wintering wildlife. ❑ Develop a formal system for recording wildlife observations on a daily basis. At minimum, these should include the date; species and number; location (using UTM co-ordinates); and as much detail about animal behaviour as is possible. ❑ If animals are observed, move to a greater separation distance when behavioural signs (changes to feeding or movement patterns) appear to indicate disturbance. Ensure detailed records are kept on these observations, when and where these decisions are made, and if possible, the animal's response as a result. ❑ Ensure that wildlife do not have access to any human foods or garbage.	❑ Use inventory and sighting information to identify habitats where animals are commonly, or occasionally sighted. Ensure that all guides can identify these habitats, and are fully aware of their importance. ❑ Develop procedures where specific habitats become off-limits or are avoided on a seasonal basis because of their use by wildlife (eg. wolverine den sites). ❑ Develop a formal system for recording wildlife observations on a daily basis. At minimum, these should include the date; species and number; location (using UTM co-ordinates); and as much detail about animal behaviour as is possible. ❑ Ensure that wildlife do not have access to any human foods or garbage.
Mechanized ground access (snow-cat or snowmobile)	❑ Develop roads and trails where they will not overlap with, or be directly adjacent to, specific habitat components that are of importance to animals at crucial times of the year. This includes, but is not limited to, major seasonal or daily movement corridors, riparian areas, etc. (Existing operations should review their road and trail development in light of this practice. However it should be understood that most have developed their road and trail networks in the context of some very restrictive geographic constraints and therefore specific changes may be precluded) ❑ Where it is necessary to develop roads or trails in known winter ranges, operators should utilize ridges and vegetated barriers to reduce visual and noise impacts. ❑ Minimize the density of trails and roads. ❑ On these roads and trails, use regular and predictable patterns for travel (including speed, timing, group size and type of vehicle). ❑ If animals are observed, move to a greater separation distance when behavioural signs (changes to feeding or movement patterns) appear to indicate disturbance. Ensure detailed records are kept on these observations, when and where these decisions are made, and if possible, the animal's response as a result. ❑ Develop a formal system for recording wildlife observations on a daily basis. At minimum, these should include the date; species and number; location (using UTM co-ordinates); and as much detail about animal behaviour as is possible. ❑ Ensure that wildlife do not have access to any human foods or garbage.	❑ Develop snow roads and trails where they will not overlap with, or be directly adjacent to, site-specific habitat components that are of importance to animals at crucial times of the year. Ensure that these roads and trails are screened through the use of appropriate vegetative buffers from adjacent habitats. (Existing operations should review their road and trail development in light of this practice. However it should be understood that most have developed their road and trail networks in the context of some very restrictive geographic constraints and therefore specific changes may be precluded) ❑ Where it is necessary to develop roads or trials in known winter ranges, operators should utilize ridges and vegetated barriers to reduce visual and noise impacts. ❑ On these roads and trails, use regular and predictable patterns for travel (including speed, timing, group size and type of vehicle). ❑ If animals are observed, move to a greater separation distance when behavioural signs (changes to feeding or movement patterns) appear to indicate disturbance. Ensure detailed records are kept on these observations, when and where these decisions are made, and if possible, the animal's response as a result. ❑ Develop a formal system for recording wildlife observations on a daily basis. These should include at the very least: date; species and number; location (using UTM co-ordinates); type of habitat; and as much detail about animal behaviour as is possible. ❑ Ensure that wildlife do not have access to any human foods or garbage.

Aircraft Access (helicopter or fixed-wing)	❑ Develop and commit to flight routes that do not overlap with areas where animals are regularly observed. Ensure that these routes are used in regular and predictable patterns (location, speed, timing, etc). ❑ In management plans and operational policies, identify specific flight vectors (speed, elevation, distance, rate of climb/descent, etc) that will be used to minimize disturbance of animals when they are known (or suspected to be) in specific habitats. Avoid any situations where animals may be surprised by the sudden appearance of aircraft. ❑ Develop a formal system for recording wildlife observations on a daily basis. At minimum, these should include the date; species and number; location (using UTM co-ordinates); and as much detail about animal behaviour as is possible. ❑ To further minimize overlaps with wintering wildlife, use information from previous day's observations to plan the subsequent days travel routes. Ensure detailed records are kept as to when and where these decisions are made, and if possible, animal responses observed as a result. ❑ Ensure that wildlife do not have access to any human foods or garbage. ❑ Do not use helicopters or fixed-wing aircraft for wildlife viewing.	❑ Where available, use habitat mapping to ensure that landing locations do not overlap with the specific habitat components that are of critical importance to these species. This is particularly important when observations indicate that animals are likely to be in the area. ❑ Develop a formal system for recording wildlife observations on a daily basis. At minimum, these should include the date; species and number; location (using UTM co-ordinates); and as much detail about animal behaviour as is possible. ❑ Ensure that wildlife do not have access to any human foods or garbage. ❑ Do not use helicopters or fixed-wing aircraft for wildlife viewing.
Development of permanent or temporary facilities	❑ Facilities should not be constructed in areas that are considered to be critical habitats for local wildlife. This is particularly true for major habitat features such as movement and connectivity corridors, as well as rare seasonal or birthing habitats. ❑ Ensure that wildlife do not have access to any human foods or garbage. ❑ Ensure that guests and staff are managed in and around the facilities to minimize the potential for encounters.	❑ Where available, use site-specific habitat mapping to ensure that facilities are built in locations that do not overlap with the specific habitat components that are of importance to these species. Where this information is not available from government or other sources prior to construction, it should be gathered through more detailed site studies. ❑ Ensure that wildlife do not have access to any human foods or garbage. ❑ Ensure that guests and staff are managed in and around the facilities to minimize the potential for encounters.

[1] Species that tend to have large home ranges, or that move widely within or between seasons. Examples include mountain caribou, wolverine or grizzly bear.

[2] Species that tend to have small home ranges, or with easily-identified site-specific habitat needs. Examples include smaller mammals, reptiles and amphibians. May also include some site-specific habitat components for wide-ranging species such as den sites, natal areas or mineral licks.

Highlights

Wildlife Best Practices		
Goal	**Minimum Standards for BCHSSOA Best Practice Compliance**	**Additional Recommendations**
Avoid or Minimize any potential disturbance to Wildlife and habitat within our tenure areas that may occur as a result of our activities.	❑ Full compliance with all appropriate legislation related to the management of Canadian wildlife. ❑ Develop an adaptive Impact Management Strategy for dealing with local wildlife that includes an inventory and monitoring policy, as well as a schedule for staff training. ❑ Avoid the use helicopters or snowcats to actively view wildlife. ❑ Conduct operations in a manner consistent with the included Disturbance Avoidance Matrix	❑ Compile a source of accurate scientific data regarding the biology of all potentially vulnerable local wildlife species. ❑ Compile a source of accurate scientific data regarding habitat ecology for all potentially vulnerable local wildlife species. ❑ Monitoring and evaluation activities should report on a variety of local species and include a particular focus on all red and blue listed species. ❑ Network with colleagues, peers and government officials to implement an effective staff training program.

IV.3 VEGETATION COMMUNITIES BEST PRACTICES

Background

Due to the inherent climatic conditions and shallow soils, alpine and sub-alpine plant communities are less resilient and less resistant to human use than those found in other ecosystems. While the majority of our activities occur during the winter months when deep snow provides protection for these underlying plant communities, members should still ensure that they have operational practices in place to minimize their impacts to these sensitive species. Particular attention should be placed on the protection of identified red and blue listed plants, and plant communities.

During the summer months, the concepts of vegetation *resistance, resilience* and *tolerance* become relevant due to their critical importance in low impact route finding. In fact, much of the ecological foundation for the best practices included within this section are centred on these three concepts.

Resistance refers the rate at which ground coverage of a plant is reduced by trampling. Resistant vegetation types tend to be dominated by either tall, tough, woody shrubs; or by graminoids (grasses, sedges, rushes) that grow in bunches or as a turf. Resistant plants are generally characterized:

- by being relatively short, or relatively large in size, and/or
- by tufted or bunched growth, and/or
- by stems that are woody or wiry and flexible, and/or
- by leaves that are tough or in basal rosettes

Plants that *lack* resistance tend to be broad-leaved herbaceous species with upright stems.

Resilience refers to the rate at which plants recover after their ground coverage is reduced. Resilience is determined by the location and toughness of growing points or buds, and by the plant's overall speed of growth. Resilient plants tend to be fast-growing broad-leaved herbs, or tufted or turf-producing grass-like species.

Lastly, ***tolerance*** refers to the amount of trampling that plants can tolerate and yet still cover a certain amount of the ground after a period of time. Characteristics that make a plant more tolerant include:

- a flat or trailing, rather than upright growth form,
- a tufted growth form,
- the presence of thorns or prickles, and/or
- stems that are flexible, rather than brittle or rigid - particularly if they are woody,
- leaves in a basal rosette,
- small, thick leaves,
- flexible leaves that can fold under pressure, and/or

- either very large or very small stature

An understanding of these concepts can help guides recognize which plant species and plant communities are sensitive to trampling and which ones are not.

Current thinking in the available research indicates that:

- **Graminoids appear to be both highly resistant and resilient to hiking traffic**. Trails rarely exist within graminoid communities, unless the ground substrate is saturated with water.

- **Forbs (broad-leafed herbs other than the grasses) appear to vary with respect to resistance and resilience**. Forbs located in open meadows, and on ridges appear to be resilient to use and are even observed re-colonizing. However, in forested areas even single passes over forbs leave obvious signs of damage.

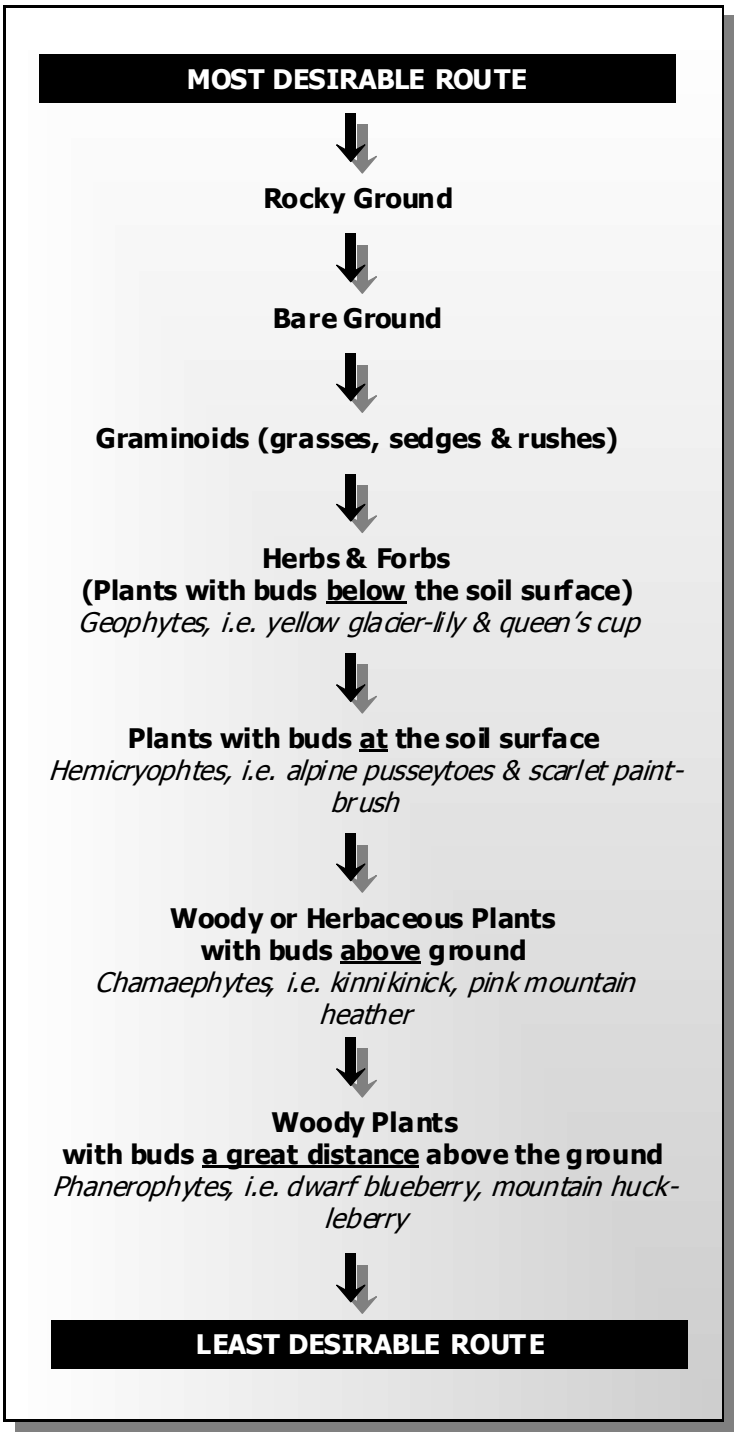
- **Heather communities do not appear to be tolerant of hiking use**. The majority of the trails observed in our operating areas occur within these heather communities. These trails often disappear upon intersecting a more tolerant vegetation community. Past studies suggest that heather is resistant to low amounts of use due to its small, tough leaves and woody stems. However, the stems are often so brittle that they are damaged even at moderate use levels. The loss of stems is accentuated by slow rates of regrowth once the stems are broken. Further, the fact that heather buds are located aboveground makes it particularly vulnerable to the loss of next year's growth via trampling damage. *If possible, heather communities (and other shrub communities) should be avoided in route finding.*

IV.3 (a) Route Finding Based on Plant Life Forms

The low productivity of alpine environments makes the recovery following disturbances extremely slow. On the other hand, the abundance of bare soil, gravel and rock provides numerous resistant surfaces to use as routes when travelling cross-country.

If these types of surface structures are absent, guides should strive to cross surfaces that contain the most resilient vegetation types, as these species can recover more easily from the associated impacts of hiking traffic. A general guide to selecting a route based on the above concepts is provided in the following figure.

Figure 2. Vegetative Guide to Route Finding



IV.3 (b) Trails

Users of the backcountry in the summer often ask the question, "Is it better to disperse or to concentrate our summer activities?" Unfortunately, the current research does not

provide a definitive answer. Drawing on the available knowledge of various experts within the field, the following best practices are endorsed by the Association.

If a trail already exists, the guides should ensure that all of the guests remain on the trail. To avoid widening the trail surface, or creating multiple trails, all hikers should remain in a single file orientation and tread down the centre of the main trail. Switchbacks should never be "shortcut" due to the significant erosion and trail damage that this can cause. Alternatively, if a trail(s) does not exist on the landscape, it is important to pick a route carefully and to spread out across the area. Research has indicated that even a small group of hikers walking single file cross-country can quickly create a new trail, which in turn, will inevitably be followed and further established by others. As previously mentioned, durable surfaces such as bare rock, sparsely vegetated forest floors and dry meadows are preferable to fragile surfaces such as wet areas, shorelines, steep slopes, or sites with low-growing shrubs such as heather.

However, if a specific hiking location is used frequently within a summer operating area, this strategy could lead to a high level of trampling throughout the location. Similarly, even infrequent use of routes that cross steep or unstable slopes, moist or boggy areas, or areas with lush and fragile vegetation can lead to unintentional trail development. According to research findings, as few as fifteen people per year walking along the same poorly chosen route can leave an unwanted and discernible path. Therefore, if a certain location is used frequently within a summer operation, guides should select a single route and instruct guests to walk single file down the middle of this existing trail.

Research further suggests that backcountry users should stay off of places that are lightly impacted or beginning to show effects of previous traffic. Lightly impacted areas are in a state of flux. If they continue to be used, they will usually deteriorate quickly and substantially; however, if left alone, most species are capable of restoring themselves. Therefore, it is important to stay off of these areas and allow them appropriate time to recover. Trail-less areas remain truly trail-less only if all users stay off the faintly emerging trails that develop among and between the more obvious routes.

Guides can prevent needless trail and hiking area degradation by avoiding areas with water saturated soils. Wet soils generally lead to accelerated muddiness, trail widening and trail braiding. If guides encounter snow-banks along a hike, guides should ensure that guests cross the snow-banks instead of skirting around them. However, this strategy should only be employed when the over-snow route does not create any significant additional safety concerns.

Steeper slopes are prone to more rapid trail degradation. In steep terrain is it least damaging to ascend or descend on available rock outcrops or on the existing snowpack. On soil covered surfaces, it is less damaging to ascend, rather than to descend, the same slope. If slopes are so steep that it is necessary to aggressively dig toes or heels into the soil to provide traction, an alternate route should be located. If no other route is possible, spreading out across the slope can mitigate the damage provided use of the area is not frequent. When descending loose scree slopes, move

slowly and cautiously. Rapid descents on these slopes can move sizeable quantities of scree down-slope and cause undesirable erosion patterns across the grade.

If guides choose to stop and let their group have a break, guides should select a durable resting place. Ideally, the spot should be comprised of a durable surface such as rock or a resistant/resilient vegetation community such as a graminoid community. If guides select a vegetated area to use as a rest spot they should make efforts not to use the same spot repeatedly, as frequent use of a single spot may lead to the rapid manifestation of use-related impacts (i.e. de-vegetation).

IV.3 (c) Other Suggestions

The environmental condition of proposed locations within an operating area should be a factor that is considered when making hiking plans at daily guide meetings. Attention should be focussed on identifying areas that need to be avoided, as well as the areas that appear to be tolerant of use. For instance, north facing slopes and other areas of late-lying snow should be avoided early in the season, or until these surfaces are less water saturated. Throughout the season, guides should continually communicate about the current environmental conditions within their operating areas. Moreover, they should employ their extensive knowledge of the local areas to highlight the visible signs of impact that may be developing upon the landscape.

When working with guests in the field, guides should explain the management principles of the operators summer activities as a means to ensure the continued responsible use of all backcountry areas. This could range from describing low-impact travel techniques to emphasizing current trail restoration efforts. Guests should also be made aware that their compliance with these principles is a critical part of the company's responsible stewardship efforts.

Finally, guides should set an appropriate example for guests by avoiding the picking of wildflowers, the unnecessary cutting of trees, or the uprooting of other plant life. Further, rocks and stones should not be removed to create level sites, to build windscreens or to become additions to a rock collection. In many cases, vegetation can only become established in the lee of these rocks, so their disturbance or removal can create a permanent barren feature.

Highlights

Vegetation Communities Best Practices		
Goal	**Minimum Standards for BCHSSOA Best Practice Compliance**	**Additional Recommendations**
Avoid or Minimize any de-vegetation within our tenure areas that may occur as a result of our activities.	❑ Full compliance with all appropriate legislation related to the environmental management of plant communities. ❑ Commit to appropriate environmental design standards for the siting and construction of all summer-use trails. ❑ Incorporate the *Plant Based Guide to Route Finding (Fig. 2)* into the management policies defining hiking activities in areas without established trails. ❑ Avoid hiking in areas, or on steep terrain susceptible to de-vegetation or erosion.	❑ Compile a source of accurate scientific data regarding the plant biology of all potentially vulnerable local plant communities. ❑ Conduct annual staff training on the principles of route finding based on plant life forms. ❑ Encourage guides to effectively communicate environmental policies to all guests during summer hiking activities.

IV.4 FISHERIES AND WATERSHEDS BEST PRACTICES

As operations occur primarily during the winter months, there should be little direct impact to fishery or water quality values in nearby streams, rivers or lakes. However, regardless of the season, operators will ensure that:

- we maintain the integrity of all riparian areas
- our waste and fuel management practices are leading-edge and are in compliance with all relevant federal, provincial and local regulations (also refer to Sections IV.5 and IV.6)
- we act in a manner that is in compliance with any relevant watershed plans
- we do not build permanent facilities in riparian areas
- we leave nothing on the ground during the winter that could leach into nearby lakes or water-courses
- we conduct all activities in a manner consistent with the BC Streamside Protection Regulations

Highlights

Fisheries and Watersheds Best Practices		
Goal	**Minimum Standards for BCHSSOA Best Practice Compliance**	**Additional Recommendations**
Avoid or Minimize all potential negative impacts on fisheries or watercourses that may occur as a result of our activities.	❑ Full compliance with all appropriate legislation related to fisheries management and watercourse protection. ❑ Develop waste and fuel management plans that specifically detail practices for avoiding watercourse impacts.	❑ Compile a source of accurate data regarding significant fisheries values present within the operator's tenure areas. ❑ Avoid the building of permanent facilities in all riparian areas. ❑ Train all staff and guides on the appropriate storage and handling of both fossil fuels and liquid wastes.

IV.5 WASTE MANAGEMENT BEST PRACTICES

Background

As members of the BCHSSOA, we commit to environmental sustainability through waste minimization and resource conservation. The BCHSSOA recognizes that waste management not only includes the management of garbage, but also an associated reduction of energy and water consumption. In an effort to produce the least amount of waste possible, members are committed to making informed and environmentally sound purchasing decisions. Members will also promote environmental protection and sustainability by developing and following a waste management program that involves reducing, reusing, and recycling strategies. Further, members understand that over time, an effective waste management program both improves environmental performance and increases economic returns. As such, all members should:

- Lower operating costs through more efficient use of materials and resources
- Save waste disposal costs through effective diversion strategies
- Showcase environmental initiatives
- Conserve our natural resources for future generations, and
- Conserve landfill space

It is the aim of the BCHSSOA to institute the highest possible standards of environmental stewardship and become leaders in our industry by establishing progressive and responsible waste management policies. In order to achieve these goals and objectives, members are committed to the development and implementation of a Waste Reduction Plan. To further maintain and improve their waste reduction programs, operators shall perform periodic reviews to ascertain which strategies have produced the best results, and to identify opportunities for programs to be improved.

To demonstrate each operator's commitment to reducing their material consumption patterns related to solid waste, water and energy conservation, waste and sewage minimization, as well as transportation, the following best practices have been developed.

IV.5 (b) Solid Wastes

Operators can commit to reducing their production of solid wastes by incorporating the following strategies into their operational policies. Members will work with staff, guests and neighbouring communities to ensure that within their operations:

- A comprehensive recycling program is in place (paper, metal, glass and plastics)
- A hazardous materials program is in place (paint, solvents, pesticides and residual fuels)
- The usage of disposable items is being consistently reduced
- Only recyclable or reusable containers are provided during tours
- The use of recycled paper and other recycled paper products is maximized

- Purchases are made in bulk whenever it is feasible to do so
- Materials are purchased to minimize packaging (eg. local products, concentrated products). Preference is given to suppliers that work with operators to reduce the packaging of their products
- Collection and removal of all litter encountered in the backcountry is practiced
- Organic wastes are diverted from landfills whenever possible through the use of responsible composting practices
- Preference is given to equipment which has a long life and which can be repaired
- Products designed for re-use are favoured (eg. rechargeable batteries, cloth napkins)
- Unwanted reusable items are donated to organizations in need (eg. outdated bedding, uniforms or leftover food)

THE BASICS

Reduce: Reduce garbage and use of resources. Decrease the quantity and toxicity of material that is generated and then thrown away. Buy less and create less garbage.

Reuse: Reuse items, energy and water resources. Reuse products in the same form, but not necessarily for the same purpose.

Recycle: Set-up a recycling system to recycle garbage and resources.

Furthermore, all members shall conduct a Waste Audit of their operation in order to assess their waste stream and determine:

- What is being generated as waste?
- Where is each type of waste being generated?
- When is the waste generated?
- How much is being generated?
- Why is it being generated in the first place?
- What opportunities are there to reduce and/or improve the handling of waste?

IV.5 (c) Sewage & Wastewater

With respect to the generation and handling of sewage and wastewater, members will adhere to all regional and federal legislative requirements, and will abide by all appropriate permits for sewage treatment facilities. In addition to this, member will strive to:

- initiate gray water recovery systems
- give preference to biodegradable cleaning products
- properly identify and control all hazardous waste products
- reduce the use of hazardous waste materials throughout operations

IV.5 (d) Water

- Reduce water consumption wherever possible without sacrificing guest service and satisfaction (eg. low flow showerheads, low flush toilets, spring-loaded faucets in sinks and showers)
- Check regularly for leaking taps, valves, pipes and toilets

- Provide written advise is for clients that encourages the reuse of linens, and the minimization of water usage
- Rainwater or other sustainable water supplies are utilized whenever possible

IV.5 (e) Energy

As operator energy use is often directly related to the production off-site of waste, pollution and/or habitat destruction, members will strive to:

- reduce unnecessary energy consumption whenever possible without affecting guest service or satisfaction
- consider co-generation opportunities whenever possible
- ensure energy efficient equipment is utilized and that it is a primary determining factor for all new purchasing decisions (eg. electrical appliance, motion sensor switches, timers)
- use compact, high-efficiency fluorescent rather than incandescent light sources whenever possible
- ensure that alternatives to traditional energy sources are utilized where possible (eg. solar panels and geothermal technologies)
- provide written advise for clients which encourages the minimization of energy use
- establish lower standard temperatures for the setting of all hot water tanks
- regularly inspect and effectively maintain weather stripping

IV.5 (f) Transportation

As cumulative point-source pollution from combustion engines is a significant contributor to air pollution as well as a producer of other related toxic and hazardous wastes, members will also strive to ensure that:

- fuel efficiency is a primary determinant in making purchasing decision for new vehicles
- group transportation for clients and staff is encouraged and favoured (eg. guest shuttles, carpools etc.)
- vehicles are maintained regularly
- the ordering of supplies is consolidated in an effort to reduce the traffic and fuel consumption associated with delivery vehicles.

IV.5 (g) Other Recommendations

Members should “pre-cycle” by considering the following questions when planning new projects and initiating all new purchases:

- Do I really need this product?
- Is the package reusable or recyclable?
- Is there a similar product with less packaging?

- Will another similar product last longer?
- Would it be better to rent or lease this product rather than to purchase it?
- Can this product be repaired rather than thrown away?
- Will the disposal of this product be hazardous to the environment? Is there a safe alternative available?
- Is this product produced locally, or is it available from a local source?

Highlights

Waste Management Best Practices		
Goal	**Minimum Standards for BCHSSOA Best Practice Compliance**	**Additional Recommendations**
Consistently and systematically reduce the amount of all wastes directly or indirectly produced by our operations.	❑ Full compliance with all regional and federal legislative requirements and associated permitting processes. ❑ Conduct an operation-wide waste audit. ❑ Create a Waste Reduction Plan that sets reduction targets and details the anticipated policies, and programs for reaching these targets.	❑ Include waste production, packaging, embedded energy and energy efficiency considerations as primary factors influencing all purchasing decisions. ❑ Encourage guests, and require staff, to strive to minimize their production of all wastes. ❑ Employ the use of renewable energy technologies whenever feasible

IV.6 FUEL MANAGEMENT BEST PRACTICES

Background

The BC Ministry of Water, Land and Air Protection has produced a summary of the Environmental Standards & Guidelines for Fuel Handling, Transportation and Storage. These guidelines were jointly developed by the former Ministry of Environment, Lands and Parks; the Ministry of Forests; the Office of the Fire Commissioner; the Canadian Coast Guard, and the Ministry of Agriculture, Food and Fisheries.

Additionally, there are three primary pieces of legislation that apply to fuel storage and management practices.

- Waste Management Act
- Fisheries Act
- Forest and Range Practices ACT

Violations of these acts can carry a significant penalty and/or an associated jail sentence. Fines of up to $ 1,000,000 and/or 36 months in prison are possible.

In each of the following six sections, this manual briefly highlights select minimum standards as defined by the legislation detailed in the above three Acts, as well as associated best practices as identified and endorsed by the BCHSSOA.

IV.6 (a) Aboveground Fuel Storage Tanks

Aboveground fuel tanks can be classified as either, "service stations" or "bulk plants", depending on the amount of bulk fuel handled, stored and transported from the facility. Rather than reciting every requirement, this section will give the general requirements that are expected from an environmental perspective. The associated best practice recommendations are intended to increase each operator's diligence and precaution with respect to spill prevention measures.

Legal Requirements

- No person shall operate a service station, install a storage tank, pump, or measuring device to be used for the purpose of retailing *flammable* or *combustible liquids* without first obtaining a permit issued by a local assistant to the fire commissioner.
- The tank farm must be secured from general public access, and must have visible markings and signs to identify the product(s) stored on site.
- Aboveground storage tanks must have at least one 80-BC rated portable fire extinguisher, or an approved equivalent located in the immediate vicinity of the pumps.
- Aboveground storage tanks shall be installed on firm foundations designed to minimize uneven settling and corrosion, and will be supported in such a way as to prevent the allowable design stress of the tank from being exceeded.

- Containment barriers or walls must be used for aboveground tanks
- No storage tank at a marine service station shall be located closer than 4.5 m horizontally from the normal annual high-water mark.
- The *Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products* states that all aboveground storage tank systems that contain petroleum products and have a single, or total capacity of more than 4,000 litres should register all storage tanks within the system with the appropriate governing authority[4].

BCHSSOA Recommendations

- Ensure that all operators keep valves closed and locked whenever they are away from the site.
- Carefully select an appropriate site to store, handle and transport large quantities of fuel. When considering appropriate site criteria, operators should:
    - keep the site centrally located, and ensure the site is down grade, as well as significantly separated from any nearby water courses
    - select a site that has good soil stability, both above and below the facility
    - select a site where the ground is not overly porous, as this will assist in reducing hydrocarbon contamination and keep any possible spills from spreading below the surface

IV.6 (b) Maintenance

Legal Requirements

- To check for leaks, spills and obvious abnormal conditions, daily visual inspections shall be made of the piping system, pumps and ancillary equipment. Any leakage shall be repaired as quickly as possible.
- An oil/water separator is required to treat storm water effluent at all bulk plants and tank farms that have a cumulative storage capacity greater than 100,000 litres (22,000 gallons).
- Any aboveground storage tank that will be out of service for a period less than 180 days, shall ensure that the piping from the tank is capped or the valves, necessary to achieve similar isolation of the tank, shall be closed and securely locked. If the tank contains flammable or combustible liquids, monthly measurements of the contents must be made, recorded, and compared to the previous month's measurements for leakage and/or water contamination.

[4] Canadian Council of Ministers of the Environment (CCME), "*Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products", 1994.*

- Any tank that will be out of service for more than 180 days must have all liquid and vapour removed from the tank and its connected piping, and must have all of the contents shipped to an appropriate facility for storage or use. The tank(s) must also be clearly marked with appropriate signage to indicate that they are empty.
- Water or snow accumulations should be removed so that the berm capacity remains at 110% of the fuel being stored. Containment areas should be covered to minimize maintenance.

BCHSSOA Recommendations

- Where a geotextile membrane is used in the containment berm, ensure that the membrane is always covered with a protective layer of soil.
- Water or snow which may be contaminated with petroleum products (storm water effluent) must be treated before it is discharged into the environment. This must be done through an oil/water separator, carbon filter, coalescing separator, air assisted liquid phase separator or other approved treatment systems. In berms that have contaminated soil, the water may be too contaminated to discharge even through an oil/water separator. This water may have to be treated, and a water sample may be required by the Ministry of Water, Land and Air Protection for analysis prior to discharging into the environment.

IV.6 (c) Double Walled Tanks

Legal Requirements

- The Fire Commissioner has ruled (Information Bulletin HM09, dated: 91/11/21) that a "tank within a box" aboveground tank assembly satisfies the intent of article 4.1.6. (BC Fire Code on Drainage and Waste Disposal) and is acceptable without the need for a conventional dike. However, double walled aboveground tanks *should*[*] only be installed and accepted without dikes provided that:
  - the interstitial space is vacuum monitored and emergency vented, or
  - the interstitial space is accessible by means of a leak detection or monitoring tube for manual or continuous hydrocarbon sensor monitoring
  - monitoring is done on a regular basis and is recorded
  - the tank is protected from vehicular impact by barriers which consist of concrete-filled steel pipes not less than 100 mm in diameter, are set into the ground to a depth of at least 1 m and which extend above the ground for at least 750 mm. Furthermore, these posts should be spaced at a distance not more than 1,400 mm apart and positioned at a distance of 1 m from the exterior of the tank assembly's outer shell

[*] This is not a legislative requirement but an interpretation of the requirement by the Fire Commissioner

- Dispensing devices that are installed directly into the tank assembly shall conform to the requirements of subsection 4.5.3 of the B.C. Fire Code. This subsection refers to CSA-B346, "Power-Operated Dispensing Devices for Flammable Liquids".

BCHSSOA Recommendations

- All double walled tanks that operate as *service stations* or *bulk plants* should have some form of secondary containment capable of containing an accidental spill from the tank, piping or transfer systems.

IV.6 (d) Fuel Handling & Operating Standards - Loading

Legal Requirements

- Overflow protection must be installed for all tanks where loading and dispensing operations occur.
- All personnel operating the loading and dispensing equipment must be trained in fire, spill, and other emergency procedures.
- When transferring bulk flammable or combustible liquids into a metal tank, vehicle, or vessel, appropriate bonding, grounding, and isolation components must be provided and used for protection against static charges.

BCHSSOA Recommendations

- Any valves leaving the main body of the tank should be shear valves. These valves shut from the inside of the tank in the event that the exterior portion of the valve is knocked off the tank.
- All transfer of bulk fuel should be done at a central fuelling facility where appropriate containment and spill response capabilities are available.
- Fuel loading procedures are posted at the fuelling site, and these procedures are reviewed with all personnel.
- To prevent any static build-ups that could result in an explosion, large, upright tanks in excess of 1,000 gallons (4,546 litres) that contain flammable liquids, should only be loaded through the bottom of the tank.

IV.6 (e) Fuel Handling & Operating Standards - Dispensing

Legal Requirements

- The length of the dispensing hose shall not exceed 4.5 metres (15 feet) and must be compatible with hydrocarbon fuels.
- The dispensing line from the tank to the dispensing station shall be an Underwriters Laboratories of Canada (ULC) approved steel pipe line.

- All personnel operating the loading and dispensing equipment must also be trained in fire, spill, and other emergency procedures.
- Where storage tanks at a marine service station are at an elevation above the dispensing unit, an electrically operated solenoid valve, designed to open only when the dispensing apparatus is being operated, must be used.

BCHSSOA Recommendations

- When dispensing from an aboveground storage tank, use an electrically operated solenoid valve designed to open only when the apparatus is being operated.
- Maintain an emergency shut off valve.
- Install overflow protection on all tanks.
- Post fuel-loading procedures at all fuelling sites, and ensure these procedures are reviewed with all personnel.
- Dispense only using an approved electric fuel pump.
- After refuelling, store hose and nozzle in such a way as to prevent unwanted spillage.
- Use only non-locking, manually operated nozzles.
- Gravity fed systems should not be used due to the high-risk potential of accidental tank drainage.

IV.6 (f) Spill Response & Reporting

Legal Requirements

- Immediately notify the Provincial Emergency Program about all hydrocarbon fuel spills greater than 100 litres (22 gallons). Call **1-800-663-3456** and report the full and complete details of the spill.
- While maintaining due regard for the safety of the public, as well as the operator, all reasonable action shall be taken to contain and minimize the effects of any spills.

BCHSSOA Recommendations

- Develop and maintain an appropriate spill contingency plan for any aboveground storage tank facilities. Conduct a risk assessment of the facility to identify potential spill scenarios and use these potential scenarios to develop an exercise plan for the site. Lastly, practice the scenarios to determine the strengths and weaknesses of the response plans.
- Maintain all appropriate spill equipment for emergency spill responses.

- As per the operator's spill contingency plan, all fuel spills and leaks should be dealt with immediately through effective containment, clean-up, and disposal. The plan should conform to the recommendations outlined in this document.
- Post signs with specific instructions on whom to contact, and what response actions should be taken in the event of a spill.

Highlights

Fuel Management Best Practices		
Goal	**Minimum Standards for BCHSSOA Best Practice Compliance**	**Additional Recommendations**
Prevent any opportunity for accidental fuel spills to negatively impact the environment, or to endanger the health and safety of staff or guests.	❑ Full compliance with all appropriate legislation and regulations related to the handling and storage of flammable or combustible liquids. ❑ Develop and test a Spill Contingency Plan for all aboveground storage tank facilities. ❑ Effectively train relevant staff on emergency preparedness, spill prevention and tank maintenance.	❑ Carefully select any new sites for aboveground storage facilities so as to decrease the potential negative effects of any future accidental spills. ❑ Employ secondary containment systems even when using double wall tanks. ❑ Use shear and breakaway valves wherever their use would minimize the effects of any accidental valve impacts. ❑ Avoid the use of gravity-fed tank systems. ❑ Post all necessary information at storage facilities to prevent, contain and report spills.

IV.7 FOREST HARVESTING AND TRAIL CONSTRUCTION BEST PRACTICES

Background

There are three primary pieces of legislation that apply to BCHSSOA members with respect to their timber cutting activities in the backcountry.

- Forest Act
- Forest and Range Practices Act
- Land Act

Ski run, heliport development and snow road construction are key components of a helicopter and snowcat skiing businesses. The scope and level of this activity varies from operator to operator, and from area to area, however the governing legislation and the recommendations of the Environmental Standards Committee apply equally to all members.

All timber harvesting must be approved by the Ministry of Forests (MoF). The most common form of approval from the Ministry is the 'License to Cut', however, there are also other secondary forms of authority-granting documents. Prior to applying for approval, the appropriate MoF office should be contacted to determine which document is required for any specific cutting proposal. Effective communication and respectful professional relationships with the Ministry of Forests will increase the mutual understanding of both the operator as well as the Ministry staff.

The BCHSSOA will continue to work with senior levels of government (MoF, MSRM, LAWBC and MWLAP) to develop standardized processes and unique documents specifically designed for managing the timber cutting needs of our industry.

Timber cutting activities for heliports and glading are critical in the development and enhancement of poor weather runs. Similarly, timber cutting for the development of new snow cat roads is crucial for the development and access of skiable terrain. The extent of these activities vary in relation to the size of the operation as well as the type and availability of suitable terrain.

Finally, the BCHSSOA is committed to managing all cutting activities in a manner that minimizes and mitigates any potential negative impacts to wildlife, wildlife habitat and critical vegetation communities (refer to Sections IV.2 to IV.4 for more detail). Additionally, the Association commits to having all timber cutting and development activities carried out in accordance with the requirements of the Workers Compensation Board.

IV.7 (a) Working with Forest Licensees

It is critically important for all operators to develop and maintain relationships of mutual trust between themselves and the tenured forest licensees operating in your area. The forest licensees are required to advertise and host open houses for all new timber

harvesting plans in order to ensure that any interested parties have appropriate opportunity to review their intentions. This referral process is the best opportunity for BCHSSOA members to inform themselves about upcoming harvest plans, and to identify any potential impacts these harvest plans may have on their operations. For small operators, co-operative harvesting with forest licensees may be the most affordable method of run and heliport development. However, regardless of the size of the operation, it is critically important that operators work to establish positive, trusting and co-operative relationships with all relevant forest licensees.

BCHSSOA Recommendations

Develop a co-operative working relationship with the forest licensees within each member's tenure area in order to co-ordinate:

- harvest activities that can enhance ski run opportunities and/or are consistent with heliport development plans
- the development of variable retention, vertically-orientated cut blocks that provide skiing opportunities while maintaining or improving the visual quality of backcountry areas
- glading activities
- regeneration densities that facilitate continued skiing opportunities
- rotational sequencing that provides reliable access to skiable terrain
- access management within the tenured areas
- the sharing of forest health information
- economies of scale for helicopter salvage projects
- sales opportunities for wood from salvage
- the inclusion of heliport salvage areas into licensee cutting and road permits

IV.7 (b) Heliport Development

Heliports are designated areas used to land helicopters, and allow skiers to disembark or embark the aircraft. Ski runs located entirely below tree line are primarily used to offer safe operational activities during marginal flying conditions. These runs often necessitate the development of heliport pick up sites within forested areas. These areas often require an associated removal of trees to create safe landing zones. Due to the substantial number of take off and landings that occur at these sites, it is critical to develop clear flight paths in order to maintain safe and effective heliports. Incorporating the actual landing site of the helicopter with the associated flyway approaches, heliports can range in size up to approximately 0.75ha. Furthermore, as ongoing maintenance of these heliports is required to keep the area clear of newly emerging growth, these areas must be considered as permanent openings in the forest cover.

As LWBC defers the approval of timber cutting permits to the Ministry of Forests, approval for cutting trees during the development of new heliports is required from MoF. In some instances a referral to the Ministry of Water, Land and Air Protection is also required and a joint approval is requisite for sites in specific critical habitat areas such as caribou winter ranges. Referral to other tenured land users such as forest company licensees may also be required. Where members are operating under a park use

permit they must also obtain approval from Parks. **Importantly, forest health, wildlife and environmental issues must be considered in all applications for heliport development.**

Regular heliport maintenance is critical for the ongoing safe and efficient use of existing heliport developments. Activities necessary to ensure this level of safety include:

- Cutting of regenerating brush species
- Cutting of regenerating tree species
- Cutting of danger trees
- Cutting old stumps

Some aspects of heliport maintenance work can be undertaken throughout the year, however the primary opportunity to complete this work is confined to the summer work window.

Maintenance of existing heliports *also* requires the approval of the Ministry of Forests. After consultation with the appropriate MoF district office, and the establishment of an approved all-inclusive 'License to Cut', the BCHSSOA member should be able to continue with the maintenance program of existing heliports with no further requirements for individual site approvals.

If the merchantable volume required to be cut for the maintenance of a single heliport is under $10m^3$/ha then it falls within the limits for allowable waste and therefore will remain under a maintenance type approval. However, if the volume is greater than $10m^3$/ha then it must be considered a new heliport and approved as such prior to cutting. The amount of volume over the $10m^3$/ha would be subject to the stumpage established for the License to Cut. Once the maintenance work is completed a list summarizing the site locations, the nature of the work, the date it was completed as well as the grades and volume of merchantable green and dead trees must be submitted to the Ministry of Forests.

BCHSSOA Recommendations

A best practices approach to all phases of heliport development is provided in Table 2 on the following page.

TABLE 2. Phased Recommendations for Heliport Developments

Phase	Recommendations
Selection	❑ Base heliport site selection on detailed assessments of the environmental and operational characteristics of each potential site ❑ To minimize the amount of timber cut, natural openings and high points of land should be favoured. ❑ Riparian areas should be avoided for heliport development
Approvals	❑ All planned heliport development along with all glading, cat trail construction, and plantation modification projects should be outlined in the Management Plan for the operator. ❑ Include a letter of support from the forest licensee(s) in your application for any cutting approvals. ❑ Detail the development location on a map base consistent with your tenured terrain location maps. Useful information for this mapping includes the location of forest licensee operating areas, existing run locations and sensitive wildlife habitats.
Development	❑ All falling must be done by certified and experienced personnel. A Certified Wildlife Danger Tree Assessor should be part of the falling crew. ❑ To reduce fire hazards, all trees are to be bucked, limbed, topped and have their debris scattered so as not to create piles. ❑ Trees shall not be felled or pushed into standing timber at the edge of heliports. ❑ All timber shall be felled away from any creeks. If due to safety reasons timber is fallen into a creek it must immediately be bucked up and removed so as not to affect water flow. ❑ To avoid the potential for spruce bark beetle, all susceptible spruce should be either cut into blocks and stood up ,or bucked flat with continuous scaring by a chainsaw. ❑ Cutting of timber for heliports should be done in the summer months to ensure the lowest possible stumps are cut and that all stems are removed. ❑ If heliports are cut in the winter then they should be reviewed again in the summer to ensure all hazards are removed. ❑ A plan to address forest health concerns needs to be place – there is potential for cutting to be completed in conjunction with insect abatement trap tree programs.
Follow-up	❑ Annually, information on the volumes and grade of each species cut must be recorded for each site and submitted for stumpage considerations. ❑ Offer to tour the development sites with government personnel and/or forest company licensees to review sites the completed, compliance to development criteria and harvest plans as well as future site development opportunities. ❑ In consultation with the Ministry of Forests, forest health inspections should be carried out to monitor the condition of the sites.

IV.7 (c) Glading Development

Properly planned and developed, glading programs provide excellent skiing opportunities and a potentially significant benefit to forest growth rates. A glading treatment refers to the thinning of non-commercial timber and is generally limited to the brushing of willow and alder, as well as the cutting of select juvenile and mature trees and snags. To facilitate skiing opportunities, the optimum tree spacing in mature forests should be approximately seven meters. This spacing opens the terrain to a broader range of abilities and managed properly, should be designed in a way that a minimal amount of tree removal will yield a maximum amount of skiing.

Glading activities target non-merchantable stems, however there is occasional incidental falling of merchantable trees to minimize any potential safety concerns discovered during the glading treatment. A volume and grade summary or ocular estimate of the merchantable stems fallen during a treatment should be completed at the end of each project.

BCHSSOA Recommendations

Co-ordinate all glading development plans with forest licensee harvest plans (e.g. develop a glading plan at higher elevations to connect with a licensee's cut block developments). These relationships advance and facilitate the MoF mandate to encourage multiple use of the forest resources, improve the quality of our product and can have positive impacts on both regional economic diversification and community sustainability objectives. Additional recommendations include:

- Utilize danger tree assessors to allow for the retention of important wildlife snags within glading treatment areas.
- Utilize glading projects to improve skiing and visual appearance of proposed or existing cutblocks.
- Glading a tree run significantly increases the safety of the run by removing the, "jill pokes" and, "clotheslines", as well as reducing the number, and the depth, of the tree wells.
- Developed a thorough understanding of the timber types and habitat characteristics within tenured areas, as many glading programs may only need to target specific elevation bands or certain abundant species of timber.

IV.7 (d) Snow Road Construction

Winter snowcat roads are seasonal roads that have the timber removed but only rarely have side-cuts into mineral soils. Snow cat operators build these roads every winter to access their ski terrain.

Legal Requirements

An authorizing document such as a License to Cut or other appropriate approvals document issued by the Ministry of Forests must be in place before any tree cutting is done for snowcat trail construction. If soil must be excavated in the construction of snowcat trails then the MoF District Manager may require an approved Road Permit in addition to the License to Cut. In some situations however, LWBC may be in a position to provide approvals if soil is to be excavated, but no trees are to be cut.

The Ministry of Forests may also request that all road construction, maintenance, use, and deactivation be conducted under an approved Road Permit or Road Use Permit. All work done under the authority of approved Road Permits must conform to the Ministry of Forests Provincial Road Standards as stated under Division 2 of Part 4 of the Forest Practices Code.

If soil disturbance is necessary for snow road construction then a road permit, complete with a proposed road layout and design, is required by the Ministry of Forests. Subject to subsection 8.1 of the Forest Road Regulations of the Forest Practices Code, a terrain stability field assessment by qualified personnel may also be required if the area has:

- a moderate or high likelihood of landslides as indicated by terrain stability hazard maps
- unstable, or potentially unstable terrain, based on reconnaissance terrain stability maps (only if no terrain stability hazard mapping is available)
- slope gradients greater than 60%, (only if no terrain stability hazard mapping *or* reconnaissance terrain stability mapping is available)
- indicators of slope instability
- previously been identified by the district manager as requiring a terrain stability field assessment

BCHSSOA Recommendations

- Use natural terrain features such as benches or ridge tops to minimize the potential for soil movement during snowcat trail construction.
- Avoid crossing slopes steeper than 60% if soil excavation is required.
- Utilize high stumps with log cribbing to hold snow and provide for extra bench width.
- Ensure an Access Management Plan for snowcat road development has been created and considers the impacts on habitat, and wildlife associated with any potential construction, or tree removal.

IV.7 (e) Logging Road Access

Operators must be aware of the status and condition of all logging roads, bridges and culverts that they make use of within their operating area. As MoF restructuring is altering the status of many of the existing Forest Service Roads, operators may need to undertake increased maintenance responsibilities of these roads. It is imperative that

the Ministry of Forests, forest licensees and BCHSSOA members keep open and active communication to ensure that any changes to access management is understood, equitable and agreed to by all parties affected by these changes.

IV.7 (f) Regeneration Management

Many operators' ski runs begin at the treeline and culminate in the open cutblocks of the valley below. Seedling growth in the older cutblocks is becoming an issue with respect to the potential impacts of skiers as they pass through these regenerating cutblocks. Without proper management of these blocks, guests may be placed at increased of risk of injury as they attempt to pass through these areas of dense regeneration. Similarly, the regeneration process itself may be endangered due to the potential impacts of client and staff skis damaging the leader growth of the young trees throughout these areas. The concern over leader growth damage usually begins well before the trees physically inhibit or endanger the passage of a skier. However, the loss of skier passage through a cutblock may in turn limit the use of the entire ski run above that block.

The most dangerous stage for the trees occurs when the tree leaders are just barely covered with snow. This stage limits the ability of the skiers to see the trees, and therefore limits their ability to avoid skiing over them, and potentially exposes to the tree leaders to impact damage. Moreover, damage to regenerating trees in these plantations can have associated legal ramifications. The forest licensee responsible for regenerating the cutblock could potentially suffer a serious loss in the quality and the quantity of acceptable seedling growth rates. As such, operators need to make a strong commitment to the protection of these regenerating cutblock plantations.

Establishing and monitoring permanent sample plots in the plantations used for ski runs provides an excellent way to determine if skiing activities are having a negative impact on plantation growth and quality. An early indication from operators who are monitoring sample plots, is that with appropriate management practices there have been no noticeable impacts on regeneration patterns. While these results are encouraging, they alone do not negate the need for members to continue to develop and monitor sample plots.

Many of the problems with the regenerating cutblocks are routed in the manner by which they were originally designed and harvested. A large continuous block running horizontally across a slope creates a potentially significant barrier to skiing for all areas located directly above this area. Opportunity to work with licensees to promote more vertically oriented cutblocks, in rotational cutting patterns, can greatly reduce the effect of plantation cutblocks on associated ski opportunities and can reduce the likelihood of any potential skier impacts on seedling growth rates.

Operators should work with local arborists, the MoF, and forest licensees to encourage spacing programs that limit habitat impacts, respect important vegetation communities, maintain overall ecosystem health all while continuing to provide safe opportunities for commercial skiing and maintaining the rate of plantation regrowth.

BCHSSOA Recommendations

- Highlight sensitive areas in the guides meeting and ensure the avoidance of these areas until snow depth increases.
- Use higher pickup points until snow depth increases.
- Ski down roads, or in a single track to pass through plantations that are at vulnerable snow depths.
- Work with forest licensees to plan for new openings adjacent to the plantations approaching vulnerable tree ages.
- Work with licensees and MoF to establish ski-through corridors characterized by reduced stocking density standards.

Highlights

Forest Harvesting and Trail Construction Best Practices		
Goal	**Minimum Standards for BCHSSOA Best Practice Compliance**	**Additional Recommendations**
Manage forestry activities throughout our operations in a manner that minimizes environmental impacts, respects forest licensee businesses and maintains safe access to commercially viable ski terrain.	❑ Full compliance with all appropriate legislation related to the management of Provincial Forest Resources. ❑ Develop an Access Management Plan for the responsible development and maintenance of all operational access routes. ❑ Actively work with forest licensees to co-ordinate harvesting plans with commercial recreation operations. ❑ Ensure that forest health, wildlife and environmental issues are considered in all applications for heliport and glading development by co-ordinating all timber cutting activities with the best practices outlined in the Wildlife, Vegetation and Watersheds sections of this manual.	❑ Share forest health information and observations with forest licensees. ❑ Conduct heliport operations consistent with the recommendations outlined in *Table 2. Phased Recommendations for Heliport Developments.* ❑ Utilize danger tree assessors to allow for the retention of important wildlife snags within glading treatment areas. ❑ If soil excavation is required, avoid crossing slopes steeper than 60% for snow road construction. ❑ Highlight sensitive regeneration areas during guides meetings, and ensure the avoidance of sensitive areas until snow depth increases.

IV.8 ENERGY INNOVATION

All effort will be made to make our operations as energy efficient as possible. Alternative, renewable energy sources including geothermal, wind and solar should be utilized whenever possible in both our base areas, as well as our staging facilities. Use of cleaner burning helicopters, snowcats and snowmobiles should be incorporated into operations whenever possible. Capital costs associated with acquiring new technologies should be compared with the long-term operational costs and pollution impacts of older technologies whenever considering new purchasing decisions.

Demand-side management should also become central to our operating procedures. This can include conservation of fuel, as well energy conservation and efficiency measures, and should be implemented whenever they are feasible and available.

Lastly, an Operational Energy Plan should be initiated, and should outline the goals, strategies, targets and monitoring instruments needed to systematically and consistently reduce our operational use of energy.

Highlights

Energy Innovation Best Practices		
Goal	**Minimum Standards for BCHSSOA Best Practice Compliance**	**Additional Recommendations**
Systematically and consistently reduce our operational use of energy.	❑ An Operational Energy Plan should be initiated, and should outline the goals, strategies, targets and monitoring instruments needed to systematically and consistently reduce our operational use of energy.	❑ Alternative, renewable energy sources including geothermal, wind and solar should be utilized whenever possible. ❑ Use of cleaner burning helicopters, snowcats and snowmobiles should be incorporated into operations whenever possible. ❑ Capital costs associated with acquiring new technologies should be compared with the long-term operational costs and pollution impacts of older technologies whenever considering new purchasing decisions

V SOCIAL SUSTAINABILITY

Social sustainability provides a solid foundation for building long-term, prosperous and enriching relationships with both local communities and operations staff. The social component of this best practices for sustainability manual incorporates the following three elements:

1. Government Accountability (Connections to Regulatory Regimes)
2. Social and Community Commitment
3. Research and Education

The details of each of these key elements are described in greater detail in Sections V.1 through to V.3.

V.1 GOVERNMENT ACCOUNTABILITY BEST PRACTICES (Connections to Regulatory Regimes)

All operators must remain in good standing with the appropriate regulatory bodies responsible for our referrals, approvals and tenure management.

Moreover, we have to be held accountable for all agreed upon uses as defined by the various approving bodies and agencies responsible for governing the activities within our tenure areas. As such, it is the responsibility of every operator to report conflicts, concerns and discrepancies to the agency responsible for the activity in question. Importantly, these correspondences should also be copied to local governments in the understanding that any action that negatively impacts on the heli/snowcat operation has direct social and economic impact on our associated staging communities.

V.2 SOCIAL COMMITMENT BEST PRACTICES

As members of the BCHSSOA we have a long standing commitment to the communities within which we live, work and play. We understand that much of our ongoing success is hinged upon the social well being of the communities adjacent to, and associated with, our operating areas. Our social commitment to these communities is enhanced through the following recommendations as they relate to our ability to support social sustainability within our tenure areas, and within the communities adjacent to our operations.

V.2 (a) Within Our Tenure Areas

Recommendations

- Review and adjust flight paths to reduce the auditory impact that our operations may have on the built up areas of local staging communities.
- Consider the use of quieter helicopters as that technology becomes both more available and more affordable.

- Commit to visual impact reviews when trail development, heliports, and glading treatments are proposed within our operations.
- Work with local communities to create land use planning strategies that complement the continued health of resource extraction industries. One such example may be the co-ordination of vertical timber cutblocks with new, or expanded, skiable terrain pods.
- Recognize that the economic diversification creates important economic resilience for the communities within, or adjacent to, our operations. We commit to working towards complementary land uses as well as fostering entrepreneurial activities within these communities.
- Consistently engage local First Nations Groups in an effort to protect traditional use areas as well as to preserve cultural and heritage values within our operating areas.
- Subsidize access to ski programs for locals as practically as is possible. This can go a long way to improving relationships with local communities, as well improving the skills and experience of the local employment pool.
- Throughout our operational areas, provide significant employment opportunities for local businesses through the purchasing of locally offered goods and services.

V.2 (b) Within Our Communities

Recommendations

- Commit to strategies that share resources with local users as practically as possible. Work with our staging communities in processes that seek to engage all users of the backcountry in manner that fosters and encourages mutual respect. This respect should strive to engender a 'team' approach that creates meaningful access for public recreation users as well as fosters the ability for member organizations to operate successful commercial recreation businesses.
- Develop opportunities for greater interaction between guests and local communities. Find opportunities to directly engage clients with local businesses, charities, and community events.
- Expand our sponsorship of, and participation in, social events, local fundraisers and community support organizations.
- Contribute to local infrastructure or services whenever feasible (eg. roads, water, medical, community centres)
- Support both directly, and indirectly, the skills development of local residents through the provision of training opportunities and apprenticeship programs.
- Advance year-round recreation opportunities for local residents – particularly emphasizing opportunities for local youth.
- Strive to eliminate, or mitigate all issues of conflict related to our operations (eg. operations impact, guest/resident interface, the use of tenure lands etc.).
- Work with local communities to provide adequate affordable housing for all operation employees.
- Acknowledge and address any impacts our operations may have on affordability within the staging communities.

- Make every effort to support local businesses through the purchasing of goods and services needed by our operations, as well creating new opportunities for positively impacting the local and regional economies.
- Explore opportunities to share costs, and jointly market, community recreation and tourism opportunities with local community economic development associations.
- Work actively with local communities to engage our helicopters and communications infrastructure for public safety and search and rescue efforts.
- Regularly involve operations staff in community volunteer projects.

V.3 RESEARCH AND EDUCATION BEST PRACTICES

To further the sustainability of our industry we need to be ever receptive to new approaches and emerging policy considerations that may impact our operations. These include the following:

- We must be proactive in searching out solutions to problems as they become apparent.
- As the results of new research and studies are made available, it is in our collective best interests to not only share this information, but make an active effort to broadcast our findings to all potentially affected parties. This should include our staff, our guests, our immediate communities, and our Association.
- We must constantly inform and educate all government agencies and politicians about the research findings and the adaptive management techniques that our Association has initiated.
- Incorporate the interests of our staging communities in our efforts to develop new research studies.

Connections to other Certification Programs

To enhance the effectiveness of this best practices approach, BCHSSOA members also recognize the value of becoming involved with other sustainability programs or certification frameworks. As noted in Section I, there are a number of these programs in existence, and more may become available each year. Some of these deal with environmental management systems, while others deal more particularly with hotel and lodge operations. Unfortunately, there does not seem to be one program – internationally, nationally or provincially - that has the full support of tourism operators, regulators and conservation organizations.

While members are currently researching these programs, the BCHSSOA is encouraging its individual members to become connected with, or certified by well-known programs such as ISO 14000 (International Standards Organization; Environmental Management), “Green Globe”, “The Natural Step,” or the WTO’s “Tour Operators Initiative for Sustainable Tourism.”

It is the intention of the Environmental Standards Committee to continue to look at these programs with a view to developing the BCHSSOA best practices standards in such a way that:

- The BCHSSOA might receive certification (such as ISO) as an organization
- Individual BCHSSOA members can gain external certification through their compliance with BCHSSOA best practice standards.
- We collectively continue to improve the quality of our own best practices frameworks.

Highlights

Social Sustainability Best Practices		
Goal	**Minimum Standards for BCHSSOA Best Practice Compliance**	**Additional Recommendations**
Conduct our operations in a manner that continually improves the relationship between our operations and the quality of life within our neighbouring communities.	❑ Full compliance with all appropriate legislation related to workplace safety. ❑ Log evidence of how our operations efforts have continually strived to improve the well being and economic vitality of our neighbouring communities. ❑ Develop a purchasing plan that favours locally provided goods and services.	❑ Make a commitment to hiring and training from within neighbouring communities. ❑ Commit to reducing the auditory and visual impacts of our operations. ❑ Expand our sponsorship of, and participation in, social events, local fundraisers and community support organizations. ❑ Explore opportunities to share costs, and jointly market, community recreation and tourism opportunities with local community economic development associations.

VI ECONOMIC SUSTAINABILITY

The economic component of the best practices for sustainability incorporates:

1. Government Accountability
2. Industry Commitment

The details of each of these key elements of economic sustainability are described below.

Members intend to continue to run their businesses so that they are financially successful, and so that they will continue to provide social, economic and experiential benefits to a wide range of individuals, communities and regions well into the future.

VI.1 GOVERNMENT ACCOUNTABILITY

Conditions for ongoing balanced investment and operational efficiencies as they relate to infrastructure, government regulations and tenure security must be maintained at the highest possible level. To this end we have to work diligently both as an Association, and individually to:

- Communicate all aspects of the economic benefits that our industry brings to our communities, our region and to BC as a whole.
- Hold our local, regional, provincial and federal governments accountable as partners in sustaining our industry's economic well being. Importantly, our collective efforts towards incorporating the best practices defined within this document significantly strengthen our position in this respect.

As such, our engagement with sustainability is our commitment towards engaging local, regional and provincial governments in a spirit of teamwork and collective enterprise.

(For further specifics regarding our industries economic impact on local, provincial and national economies refer to, "Socio-Economic Benefits of Helicopter and Snowcat Skiing in British Columbia".)

VI.2 INDUSTRY COMMITMENT

As an industry, the members of the BCHSSOA must commit to enhancing the fiscal prosperity of our individual operations as well as the economic vibrancy of the communities within which we work. To that end, we must:

- Continue to support local tax bases, and employee payrolls through operating successful, financially sound, long-term businesses. Therefore, every effort will be made to operate well-managed and fiscally responsible operations that continue to provide local employment opportunities while at the same time contributing to public earnings through ongoing tax revenues.

- Commit to buying locally as an important means of multiplying the export dollars generated by BCHSSOA operations.
- Create local economic activity through hiring and training from within the local employment pool.
- Develop ways to expose visitors to local investment opportunities.
- Expand the income generating possibilities for local residents and businesses.
- Explore means of creating both seasonal and year-round local jobs.
- Make an effort to access an increasing range of local products and services.
- Create opportunities for fostering and incubating complementary local businesses and services.
- Whenever possible, engage in local and regional joint marketing opportunities that positively impact significant segments of local economies.
- Work with community economic development efforts to reinvest capital within our staging communities whenever possible.

Highlights

Industry Commitment Best Practices		
Goal	**Minimum Standards for BCHSSOA Best Practice Compliance**	**Additional Recommendations**
Conduct our operations in a manner that continually improves the economic vibrance and resilience of our neighbouring communities.	❑ Full compliance with all appropriate legislation related to the Canadian Customs and Revenue Agency. ❑ Commit to buying locally as an important means of multiplying the export dollars generated by BCHSSOA operations.	❑ Conduct our businesses in a manner that demonstrates our high ethical standards and commitment to being good corporate citizens. ❑ Create local economic activity through hiring and training from within the local employment pool. ❑ Create opportunities for fostering and incubating complementary local businesses and services. ❑ Work with community economic development efforts to reinvest capital within our staging communities whenever possible.

VII CONCLUSIONS

The BCHSSOA has recognized and acknowledged that we as an industry need to embrace common environmental, social and economic best practices in each of our operations in order to move towards industry-wide sustainability. Based on the findings of current studies, ongoing monitoring and proactive research projects, we are increasingly more confident that we have are having minimal environmental impacts on the areas within which we operate. In fact, it is our belief that helicopter and snowcat skiing has the lowest environmental impact of any commercial mechanized winter recreation activity in British Columbia. This, combined with our growing commitment to the social and economic well being of the communities within which we live and work is key to our ability to sustain the individual and collective success of our industry into the future. As such, we commit as an industry, to advance and promote the principles of sustainability through the development, acceptance and integration of these best practices.

VIII APPENDICES

WILDLIFE SIGHTING FORM **Observer:**

Date			Species	Number							Activity		Weather				Comments and Actions Taken
Year	Mo	Day	Name	Adult			Juve			Unsure	Code	Des	Temp	Wind	Cloud	Prec	
				M	U	F	M	U	F	U							

Habitat (Vegetation, Features, etc.)

BGC Zone

Elevation		**UTM** (Zone/Easting/Northings)			
Slope %		**Map Datum**	NAD27 ☐	NAD83 ☐	GPS ☐
Aspect		**Location**	(Verbal Description)		

Activity Codes	
AL	Alert
BE	Bedding
BI	Birthing
DE	Denning
DI	Disturbed
FD	Feeding
FL	Fleeing
TE	Territoriality
Cloud Codes	
1	Clear
2	Partial (<50%)
3	Partial (>50%)
4	Unbroken Cloud

Descriptor Codes		
S	Animal was seen	
H	Animal was heard	
F	Fresh sign (<1wk)	
Y	Old sign (> 1wk)	
U	Undetermined	
Wind Codes		
0	(<2km/hr)	
1	(2-5km/hr)	
2	(6-12km/hr)	
3	(13-19km/hr)	
4	(20-29km/hr)	
5	(30-39km/hr)	
6	(40-50km/hr)	

Precip Codes	
N	None
F	Fog
M	Misty Drizzle
D	Drizzle
LR	Light Rain
HR	Hard Rain
S	Snow

Sketch of Site

Adapted From Provincial Wildlife Sighting Form