

# Draft Compatibility Determination

## Title

Draft Compatibility Determination for Horseback Riding, Little Pend Oreille National Wildlife Refuge.

## Refuge Use Category

Outdoor Recreation (General)

## Refuge Use Type(s)

Horseback Riding

## Refuge

Little Pend Oreille National Wildlife Refuge

## Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

"... as a Refuge and breeding ground for migratory birds and other wildlife..."  
(Executive Order 8401, dated May 2, 1939)

" ... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (16 U.S.C. 715d [Migratory Bird Conservation Act])

"... suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ..." (16 U.S.C. 460k-1) ... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ... 16 U.S.C. 460k-2 (Refuge Recreation Act (16 U.S.C. 460k-460k-4), as amended).

"... for the development, advancement, management, conservation, and protection of fish and wildlife resources ..." (16 U.S.C. 742f(a)(4) ... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ... 16 U.S.C. 99 742f(b)(1) (Fish and Wildlife Act of 1956).]

. . for conservation purposes. Consolidated Farm and Rural Development Act (7 U.S.C. 2002).

## National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System (Refuge System) is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats

within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

## Description of Use

Is this an existing use?

Yes. This Compatibility Determination (CD) reviews and replaces the 2000 CD for the use on Little Pend Oreille National Wildlife Refuge.

What is the use?

We propose to allow horseback riding on roads open to public access and designated trails within Little Pend Oreille National Wildlife Refuge.

Is the use a priority public use?

No

Where would the use be conducted?

Horseback riding is allowed only on Refuge roads and trails, as posted, on the main unit of Little Pend Oreille NWR, as well as the Kaniksu Unit. Cross-country and off-trail riding is prohibited. Refuge campers can only camp with horses in the Horse Camp and Bear Creek Campgrounds. Parking for horse trailers is located at the Bear Creek Trailhead, the Horse Camp and Bear Creek campgrounds, and the Starvation Road gate near Narcisse Creek County Road.

Entry on to all or portions of the Refuge may be temporarily suspended and posted closed due to unusual or critical conditions affecting public safety or any of the resources managed by the Refuge.

When would the use be conducted?

Horseback riding can occur throughout the year on Refuge roads open to public access and designated trails. The majority of the horseback riding use occurs during the spring, summer, and fall seasons.

How would the use be conducted?

Horseback riding will be conducted in accordance with the stipulations necessary to ensure compatibility. Group size is limited to no more than 10 horses without requiring a Special Use Permit. The Refuge Manager, on a case-by-case basis, may consider groups with more than 10 horses, organized events, and/or competitive events for a Special Use Permit (SUP).

Each request for a SUP (if warranted) will be evaluated for impacts to wildlife, habitats, Refuge resources, priority public uses and, as appropriate, wilderness

character. Conditions may be added to the SUP on a case-by-case basis to minimize the anticipated impacts to resources from horseback riding, and to ensure that any impacts which cannot be avoided, minimized, or mitigated remain temporary and negligible. Some requests may require further analysis of the impacts of the proposed activity on special status species or cultural resources, which may require additional compliance with the National Environmental Policy Act (NEPA), and consultation under any other relevant laws.

If a use conflicts with Refuge resources, Refuge management programs, or priority wildlife-dependent uses, the participant(s) must identify in advance the methods/strategies required to minimize or eliminate the potential impact(s) and conflict(s). If unacceptable impacts cannot be avoided, then a SUP would not be issued.

**Why is this use being proposed or reevaluated?**

This use is being reevaluated in accordance with Service policy, 603 FW 2.11H(2).

### **Availability of Resources**

The present Refuge non-priority public use program is designed to be administered with minimal refuge resources (less than \$1,000 annually) at the current level of use (approximately 200 visits annually for all non-priority uses combined) and can be managed with existing staff resources. Maintenance of Refuge roads, trails, and campgrounds incur costs, but costs are not directly related to horseback riding since facilities are shared with other priority public uses. No improvements are needed or planned.

### **Anticipated Impacts of the Use**

This CD includes written analyses of the environmental consequences on a resource when the impacts on that resource could be more than negligible and therefore considered an “affected resource.” Based on best professional judgement and nearly 25 years of managing these uses at the Refuge, air quality, flood plains, cultural resources, and socioeconomics will not be more than negligibly impacted by the action and have been dismissed from further analyses.

**Potential impacts of a proposed use on the Refuge's purpose(s) and the Refuge System mission**

Horseback riding itself is not a priority public use on Service lands per the Refuge System Improvement Act of 1997, and is generally conducted for sport and recreation. However, due to the size, remoteness, and quality of roads and trails within the Refuge, it supports or enhances priority wildlife-dependent uses, including hunting, fishing, wildlife observation, and wildlife photography. It provides opportunities for visitors to enjoy the Refuge's resources, to gain or increase their understanding of

and appreciation for fish, wildlife, wildlands ecology, the relationships of plant and animal populations within the ecosystem, and wildlife management. This use will provide opportunities for visitors to directly observe and learn about wildlife and habitats at their own pace in an unstructured environment. This use will enhance the public's understanding of natural resource management programs and ecological concepts to enable them to better understand the problems facing natural resources and to realize what impact the public has on wildlife resources. Additionally, the public can learn about the Service's role in conservation and better understand the biological facts upon which Service management programs are based, consequently fostering an appreciation for the importance of wildlife and habitats.

Participation in this use is expected to contribute to a more informed public, with an enhanced stewardship ethic and greater support for wildlife conservation. Furthermore, this use will provide an intrinsic, safe, outdoor recreational opportunity in a scenic setting, with the realization that those who come strictly for recreational enjoyment will be enticed to participate in the more enhanced facets of the visitor use program and can then become informed supporters for wildlife conservation. By allowing this use with the stipulations described below, we will provide opportunities and facilitate programs in a manner and at locations on the Refuge that offer high quality, wildlife-dependent recreation while maintaining the current levels or increased levels of natural resource values.

Therefore, use of Little Pend Oreille National Wildlife Refuge for horseback riding is expected to benefit and promulgate the Refuge's purposes and the Refuge System's mission.

### Short-term impacts

Horseback riding has both direct and indirect effects on habitat. The principal impacts associated with horseback riding are loss of vegetation; potential introduction of invasive non-native plant species; soil compaction and erosion from trampling on trails and at horse camps; and reduced water quality due to nutrients from feces and runoff from areas where soils have been compacted and disturbed. Horse usage of multi-use trails can negatively impact other trail users through damage to trails (e.g. creation of deep ruts or mud, which make trails difficult for hikers to use) and presence of feces.

Trampling causes mortality of plant (and animal) species by crushing them (Whittaker 1978, Hammitt and Cole 1987, Widner et al 1993). Grazing by horses can reduce vegetation. There is some risk of non-native, invasive plants being spread by horses (Campbell and Gibson 2001, Wells and Lauenroth 2007, Gower 2008, Quinn et al. 2010). Any trail or road can be a conduit for the introduction of non-native plants, since exposed soil and abundant sunlight provide favorable conditions for establishment of these species.

Immediate responses by wildlife to human activity can range from behavioral changes

including nest abandonment, altered nest placement, and change in food habits to physiological changes such as elevated heart rates, increased energetic costs due to flight or flushing, or even death (Belanger and Bedard 1990; Kight and Swaddle 2007; Miller and Hobbs 2000; Miller et al. 1998; Morton et al. 1989). According to Knight and Cole (1990), there are three wildlife responses to human disturbance: avoidance, habituation, and attraction. The magnitude of the avoidance response may depend on a number of factors including the type, distance, movement pattern, speed, and duration of the disturbance; the time of day, time of year, weather; and the animal's access to food and cover, energy demands, and reproductive status (Fernández-Juricic et al. 2007; Gabrielsen and Smith 1995; Cole and Knight 1990). Habituation is defined as a form of learning in which individuals stop responding to stimuli that carry no reinforcing consequences for the individuals that are exposed to them (Alcock 1993). A key factor for assessing how wildlife will respond to disturbance is the predictability of the use. Often, when a use is predictable—for example, when visitors stay on a trail, boardwalk, or viewing deck—wildlife will habituate to and accept human presence (Oberbillig 2000).

Although wildlife disturbance from horseback riding is not well documented, some studies suggest that many wildlife species are habituated to livestock and that horseback wildlife observers can approach wildlife at closer distances than by other forms of travel (Bennett and Zuelke 1999). Any form of approach is expected to cause some disturbance, which will vary according to the species affected and the type, level, frequency, and duration of disturbance, as well as the time of day or year that it occurs. Wildlife disturbance will depend on the way in which each horse is ridden. Allowing horseback riding only on roads and designated trails and not allowing trotting, galloping, or cantering should reduce disturbance to Refuge wildlife as well as impacts to soils and vegetation.

Overall, the short-term impacts from horseback riding, and the use and periodic maintenance of existing roads, trails, and support facilities are expected to be adverse, but minor and localized, due to the relative low level of use, the relatively large size of the Refuge, and stipulations imposed on the use. With the stipulations described below, this use generally has negligible animal mortality or disturbance, or habitat destruction; no introduction of contaminants; and no introduction of non-native species.

### Long-term impacts

Long-term effects of horseback riding may include soil compaction or erosion, reduced water quality, damage to or loss of vegetation along trails and at horse camp sites, and introduction of invasive non-native plant species along trails or at horse camp sites.

There is the potential for introduction of invasive, non-native plant species associated with horseback riding. Most invasive plants need some form of transportation to reach new areas (Trombulak and Frissell 2000). Several potential

modes of transportation, or “vectors,” continually travel throughout Little Pend Oreille National Wildlife Refuge in the form of vehicle traffic on roads, people, pets, domestic stock, wildlife, and tools and equipment taken onto the Refuge. Overnight use of stock is limited to Bear Creek and Horse Camp Campgrounds for several reasons, including to limit potential impacts from invasive species. This limitation on the use of stock and the requirement that only certified weed-free hay be brought into the Refuge, minimizes likelihood of introduction of invasive plants and impacts to habitat.

Monitoring of public use in identified sensitive wildlife habitats would be used to determine if impacts from horseback riding could impact the health, vigor, or productivity of fish, wildlife, or their habitats in these areas. If such potential for impact is identified, the Refuge would increase public notification and education regarding those impacts and/or close the areas to public use for critical periods or longer if necessary.

The long-term effects of wildlife disturbance from horseback riding are more difficult to assess but may include altered behavior, decreased vigor or productivity, or death of individuals; altered population abundance, distribution, or demographics; and altered community species composition and interactions. Disturbances can compound seasonal stressors in wildlife. Examples include regularly flushing birds during nesting, exposing juvenile animals to greater predation levels, causing mammals to flee during winter months, or causing large amounts of stored fat reserves to be consumed. Over time, these disturbances could lead to long-term changes in wildlife use patterns through either avoidance or habituation. When combined with other visitor activities in the public use, there is potential for cross-country skiing, snowshoeing, and running/jogging to lower individual fitness or reproductive success, thereby affecting wildlife populations in a localized area.

However, while impacts of the use can be serious for individual plants and animals and perhaps localized rare populations, they are generally of little significance to populations or species, landscape integrity, or regional biological diversity. Moreover, unless a localized, rare population is impacted by a single impacted site, the intensity, size, and distribution of impacts are not relevant to the significance of impacts assessed at large spatial scales (Cole 1989). The effects on wildlife from disturbance, displacement, and habituation have been well documented and studied in other areas (e.g., Cole, 2004; Cole & Knight, 1990) and impacts are generally short-term and minor. Limiting group size and restricting horseback riding to roads and designated trails also allow animals in the area to habituate to the use. Educating the public on the effects of recreation on wildlife and habitat would reduce negative impacts resulting from this use. Due to the size of the Refuge and the low numbers of users participating in these activities, long-term effects on wildlife populations or distribution are therefore expected to be minimal.

Potential Impacts to Cultural Resources:

Nearly all of the Refuge is open to public use, including hunting, fishing, wildlife observation, wildlife photography, environmental education, interpretation, and camping. All recreation uses and activities are regulated and managed to avoid significant effect to biological integrity, diversity, and environmental health. The most noticeable disturbance effects occur along the network of maintained roads and trails which support recreation uses and activities within the Refuge. As such, it is unlikely that this relatively low-use activity would negatively affect cultural resources. The possible threat of inadvertent collection of prehistoric artifacts would be further mitigated through outreach, education, and enforcement of Refuge regulations.

#### Mitigation of Potential Impacts:

To prevent or minimize these potential long-term impacts, Refuge staff would work to ensure that visitors follow stipulations through law enforcement, Refuge and volunteer presence, and various forms of outreach. Refuge staff and law enforcement would regularly assess campgrounds and trails for safety and quality of visitor experience, wildlife disturbance, cultural resources, and impacts to soil and vegetation. The Refuge would also monitor these areas for non-native invasive species and implement appropriate control measures. If use levels are resulting in unacceptable impacts to Refuge resources, visitor experience, or public safety, the use may be modified or relocated to prevent additional impacts and restore habitat.

### **Public Review and Comment**

The draft compatibility determination will be available for public review and comment for 14 calendar days to provide comments following the day the notice is published. The public will be made aware of this comment opportunity through our social media outlets and letters to potentially interested parties. A hard copy of this document will be posted at the Refuge Headquarters at 1310 Bear Creek Road, Colville, WA 99114. It will be made available electronically on the refuge website at [https://www.fws.gov/refuge/little\\_pend\\_oreille/](https://www.fws.gov/refuge/little_pend_oreille/). Please let us know if you need the documents in an alternative format. Concerns expressed during the public comment period will be addressed in the final Compatibility Determination.

### **Determination**

Is the use compatible?

Yes

#### **Stipulations Necessary to Ensure Compatibility**

1. Horseback riding is only allowed on roads open to public access and on designated trails. Cross-country and off-trail riding is prohibited.
2. Groups will be limited to ten or fewer horses unless a Special Use Permit is

obtained.

3. Horses must be at a walk. Trotting, cantering, or galloping on roads and trails is not permitted.
4. Organized group rides with more than 10 horses, competitive events, and/or group training for any of these uses may be considered for a Special Use Permit by the refuge manager on a case-by-case basis.
5. The permittee and all associated personnel agree to conduct activities in a safe manner, in compliance with all Refuge regulations and policies, and with precaution to avoid damage to resources, property, or personnel. Refuge staff will not be held responsible for loss of, or damage to, equipment.
6. A copy of the Special Use Permit must be in the permittee or associate's possession at all times while exercising the privileges of the Permit. A copy of the Permit must be shown to any USFWS employee or Federal law enforcement officer upon request.
7. Failure to abide by any part of the Special Use Permit; violation of any Refuge-related provision or Code of Federal Regulations; or violation of any pertinent state regulation (e.g., fish or game violation) will, with due process, be considered grounds for revocation of the permit and could result in denial of future permit requests for lands administered by the USFWS. This provision applies to all persons working under the authority of the permit.
8. Camping with horses is allowed only in Bear Creek and Horse Camp.
9. Horse trailers may be parked at the Bear Creek Trailhead, the Horse Camp and Bear Creek campgrounds, and the Starvation Road gate near Narcisse Creek County Road.
10. Horseback riders must supply their own feed. Grazing horses on the Refuge is prohibited.
11. Only certified weed-free hay, hay pellets, or cubes are permitted on the Refuge.
12. Prior to bringing horses onto the Refuge, they should be groomed and tack inspected to remove weed seeds.
13. Manure and excess hay must be removed from campsites.
14. Horses in camps must be confined at least 100 feet from water, cannot be tied directly to trees, but must be confined in a temporary corral or tied to a hitch rail or to a high picket line.
15. Regulations will be available at information kiosks on site, through a Refuge brochure, and will be posted on the Refuge website. Regulations are also available by contacting Refuge staff for information.
16. Refuge staff and volunteers will monitor uses to ensure compatibility, refine



user estimates, and evaluate compliance. Potential conflicts between user groups will also be evaluated. The Refuge will maintain an active law enforcement presence to ensure visitor compliance with all Refuge rules and regulations.

### **Justification**

Horseback riding, as outlined in this compatibility determination, would not conflict with national policy to maintain the biological diversity, integrity, and environmental health of Little Pend Oreille NWR. Based on the stipulations outlined above, it is anticipated that wildlife populations will find sufficient food resources and resting places such that their abundance and use of the Refuge will not be measurably lessened as a result of allowing horseback riding on Little Pend Oreille NWR. The relatively limited number of individual animals expected to be adversely affected as a result of horseback riding will not cause wildlife populations to materially decline, the physiological condition and production of species present will not be impaired, their behavior and normal activity patterns will not be altered dramatically, and their overall welfare will not be negatively impacted. Based on available science and best professional judgement, the Service has determined that horseback riding at Little Pend Oreille NWR, in accordance with the stipulations provided here, would not materially interfere with or detract from the National Wildlife Refuge System mission or the purposes of the Refuge. Rather, appropriate and compatible horseback riding would be a use of Little Pend Oreille NWR through which the public can develop an appreciation for wildlife and their habitats, as well as the role of the National Wildlife Refuge System in resource conservation.

## Signature of Determination

Refuge Manager Signature and Date

## Signature of Concurrence

Assistant Regional Director, NWRS, Pacific Region 1 Signature and Date

## Mandatory Reevaluation Date

2034

## Literature Cited/References

Alcock, J. 1993. Animal behavior: an evolutionary approach. 5th ed. Sunderland, MA: Sinauer Associates.

Belanger, L. and J. Bedard. 1990. Energetic cost of man-induced disturbance to staging snow geese. *Journal of Wildlife Management* 54:36-41.

Bennett, K. A., and Zuelke, E. F. 1999. The effects of recreation on birds: A literature review. Smyrna: Delaware Natural Heritage Program.

Campbell, J. E., & Gibson, D. J. 2001. The Effect of Seeds of Exotic Species Transported via Horse Dung on Vegetation Along Trail Corridors. *Plant Ecology*, 157(1), 23-35.

Cole, D. N. and R. L. Knight. 1990. Impacts of recreation on biodiversity in wilderness. Utah State University, Logan, UT.

Fernández-Juricic, E., P.A. Zollner, C. LeBlanc, and L.M. Westphal. 2007. Responses of nestling black-crowned night herons (*Nycticorax nycticorax*) to aquatic and terrestrial recreational activities: a manipulative study. *Waterbirds* 30(4):554-565.

Gabrielsen, G.W. and E.N. Smith. 1995. Physiological responses of wildlife to disturbance. Pages 95-107 in: R.L. Knight and K.J. Gutzwiller, eds. *Wildlife and recreationists: coexistence through management and research*. Washington, D.C.: Island Press.

Gower, Stith. T. 2008. Are horses responsible for introducing non-native plants along

forest trails in the eastern United States? *Forest Ecology and Management* 256: 997–1003.

Hammitt, William E., David N., Cole and Christopher A., Monz. 2015. *Wildland Recreation: Ecology and Management*. Chichester, West Sussex, UK ; Hoboken, NJ, USA, Wiley Blackwell. 313 pp.

Kight, C.R. and J.P. Swaddle. 2007. Associations of anthropogenic activity and disturbance with fitness metrics of eastern bluebirds (*Sialia sialis*). *Biological Conservation* 138(1-2):189-197.

Knight, R.L. and D.N. Cole. 1995. Factors that influence wildlife responses to recreationists. Pages 71-79 in: R.L. Knight and K.J. Gutzwiller, eds. *Wildlife and recreationists: coexistence through management and research*. Washington, D.C.: Island Press.

Miller, J.R. and N.T. Hobbs. 2000. Recreational trails, human activity, and nest predation in lowland riparian areas. *Landscape and Urban Planning* 50(4):227-236.

Miller, S.G., R.L. Knight, and C.K. Miller. 1998. Influence of recreational trails on breeding bird communities. *Ecological Applications* 8(1):162-169.

Morton, J.M., A.C. Fowler, and R.L. Kirkpatrick. 1989. Time and energy budgets of American black ducks in winter. *Journal of Wildlife Management* 53:401-410.

Oberbillig, D.R. 2000. *Providing positive wildlife viewing experiences*. Deborah Richie Communications. Missoula, MT.

Quinn, Lauren D., Adda. Quinn, Mietek Kolipinski, Bonnie Davis, Connie Berto, Mark Orcholski, and Sibdas Ghosh. 2010. Role of Horses as Potential Vectors of Non-Native Plant Invasion: An Overview. *Natural Areas Journal* 30(4):408-416.

Trombulak, S. C. and C. A. Frissel. 2000. Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities. *Conservation Biology*, 14, 18-30.

USFWS (U.S. Fish and Wildlife Service.) 2000. *Final Comprehensive Conservation Plan and Environmental Impact Statement for Little Pend Oreille National Wildlife Refuge*.

Wells, FH and Lauenroth, WK. 2007. The Potential for Horses to Disperse Alien Plants along Recreational Trails. *Rangeland Ecology & Management* 60:574-577.

Whittaker, P. L. 1978. *Comparisons of surface impact by hiking and horseback riding in the Great Smoky Mountains National Park*: U.S. Department of the Interior, National Park Service

Widner, Carolyn and Jeffery L. Marion. 1993. *Horse Impacts: Research Findings and Their Implications*. Master Network, A publication of the National Outdoor Leadership School, part 1-1993: No. 5(pp.5 -14); part 2-1994: No. 6 (pp.5-6).

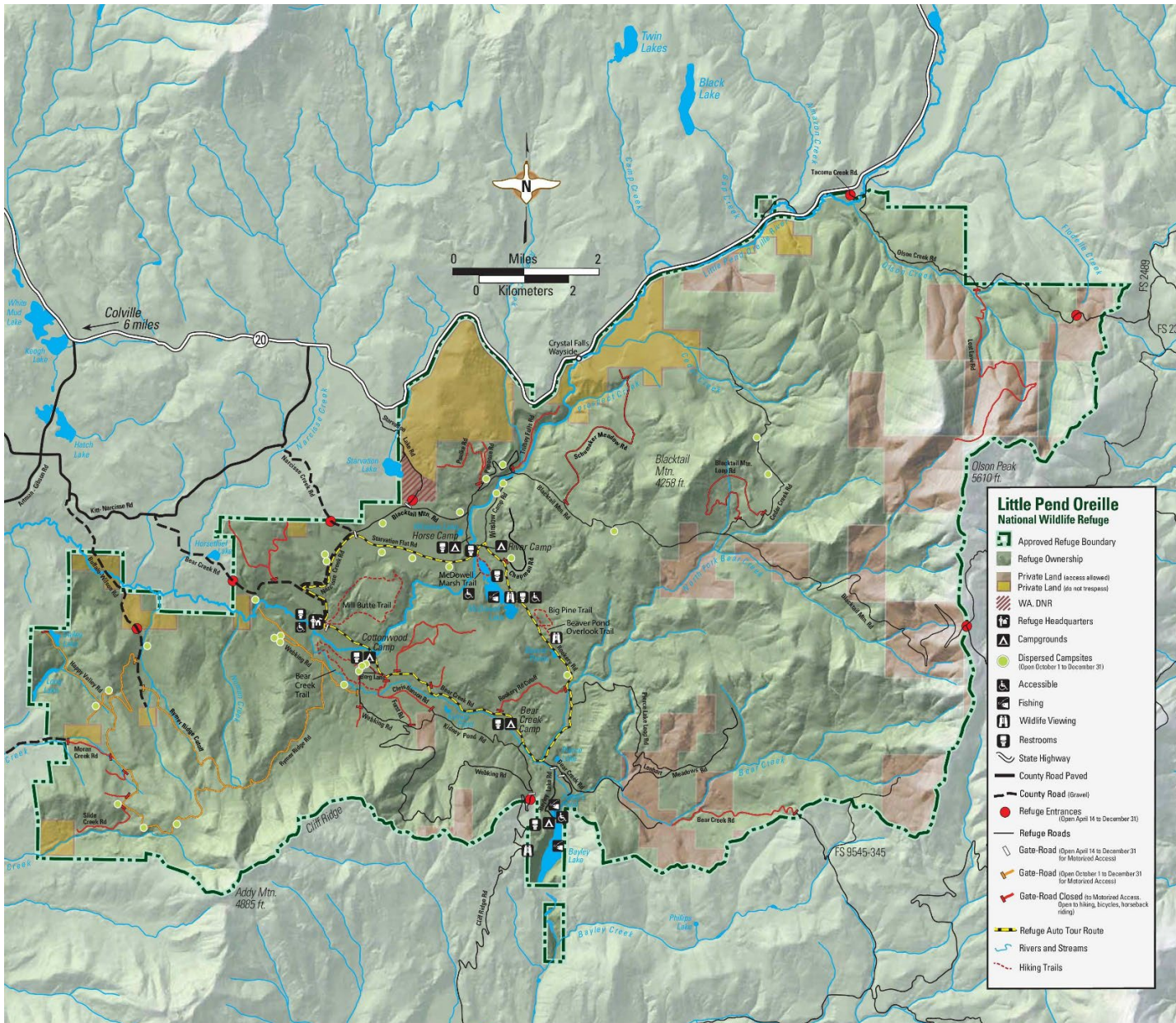


Figure 1. Roads and trails open to horseback riding, Little Pend Oreille National Wildlife Refuge