Draft Compatibility Determination

Title

Draft Compatibility Determination for Turkey Hunting, Turnbull National Wildlife Refuge

Refuge Use Category

Hunting

Refuge Use Type(s)

Hunting (upland game)

Refuge

Turnbull 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 7681, dated July 30, 1937)
- " ... 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)].

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as 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

What is the use?

Fall turkey hunting. Turkey hunting provides an additional wildlife-dependent recreation opportunity, while managing turkey populations to reduce conflicts with native species.

Is the use a priority public use?

Yes

Where would the use be conducted?

Turnbull NWR lies within Washington Department of Fish and Wildlife's (WDFW) Northeast Wild Turkey PMU Population Management Unit (PMU 10). Turkey hunting is allowed on the Long Lake Unit (1,883 acres) between Mullinix Road and the Columbia Plateau Trail. We propose to open the Helm's Unit (330 acres) to turkey hunting in Fall 2024 (see map). Only turkey hunting is allowed on the Long Lake unit. Elk hunting is allowed on the Helm's Unit; however, opportunities to hunt elk on this unit are limited and therefore we expect little use of this unit by elk hunters. Turkey hunters, with the exception of disabled hunters, will only be allowed access to the turkey hunt areas by foot through the parking area gate on Mullinix Road.

When would the use be conducted?

Turkey hunting would occur four days per week (for example: Saturdays, Sundays, Wednesdays, and Thursdays) during the Washington State general fall turkey season in WDFW Region 1, which runs from September 1 through December 31. Therefore, the Refuge would be open to turkey hunting for 70 days annually.

How would the use be conducted?

Hunting within the Refuge is consistent with Federal, Washington Department of Fish and Wildlife, and Refuge-specific hunting regulations. Refuge-specific regulations require the use of non-toxic shot for turkey hunting.

No special permission or permits are required from the U.S. Fish and Wildlife Service to hunt turkey, other than a Special User Permit to allow use of vehicles and e-bikes

by hunters with disabilities (see below). Hunters must be in possession of a valid state small game hunting license and a turkey transport tag. Turkey hunting is by advance online reservation only. WDFW manages reservations with their Hunting By Reservation Only program, under a hunting access agreement with the Service. All hunting dates will be posted on WDFW's online reservation program webpage prior to the start of the fall season. Reservations can be made beginning at 8:00am, 14 days prior to the actual hunting date. Hunters reserve dates on a first-come, first-serve basis. Up to two hunting parties with up to four hunters per party would be allowed to hunt during a two-day hunt period (for example: Saturday-Sunday or Wednesday-Thursday) in the Long Lake Unit, while one hunting party would be allowed in the Helm's Unit per two-day hunt period. Once hunters have made a reservation and prior to hunting, they may call the Refuge to receive a safety briefing and have their questions answered by Refuge staff.

Turkey hunters with disabilities that obtain a reservation through the WDFW's "Hunting By Reservation Only" program must apply to the Refuge Manager for a Special Use Permit in advance of their hunt date that would allow them to use a vehicle or e-bike to access the hunt area. An access combination to the Long Lake road entrance gate is provided to allow access to the hunt area by hunters with disabilities. Only the vehicle or e-bike that is being used by a hunter with disabilities may drive into the refuge, and vehicles and e-bikes are restricted to existing/maintained roadways within the hunt unit. Other modes of transportation and access will be determined through the SUP process.

Free-roam hunting would be allowed throughout the 2,213 acres open to fall turkey hunting. Hunters would be informed of no hunt zones and regulations via posted signs, brochures, and online resources, including the WDFW reservation information system. Facilities that would be used for the hunt include the hunter parking area on Mullinix Road, and various existing service roads, and trails. Up to 816 hunter use days per year may accrue for this use annually.

Why is this use being proposed or reevaluated?

In accordance with the National Wildlife Refuge System Administration Act of 1966, as amended, hunting is a priority wildlife-dependent public use. Public land for hunting is in limited supply, especially near large metropolitan areas (U.S. Department of the Interior [USDOI] et al. 2007) such as Spokane. In general, there has been a static or declining trend in hunting participation relative to population growth in the United States since 1985 (USFWS 2004). The trend also indicates a declining number of young hunters. From 1991 to 2001, the number of Americans 16 years of age and older who hunted declined by 7 percent. Opportunities to hunt in the greater Spokane area are increasingly scarce due to an ever-growing population, urbanization, and a relative lack of public lands open to these uses.

Availability of Resources

The analysis of cost for administering and managing each use will only include the incremental increase above general operational costs that we can show as being directly caused by the proposed use. Estimated costs for operating the turkey hunting program displayed in the following table. Recurring expenses include estimated annual salaries for recreation and maintenance personnel involved in administering program.

Table 1: Costs associated with the Proposed Turkey Hunt

Proposed Activity or Project	One Time Expense	Recurring
	(\$)	Expenses (\$/year)
Develop hunt opening	\$5,000	N/A
package		
Administer hunt	\$2,000	\$1,000
Develop new publications,	\$6,000	\$1,000
signage associated with new		
hunt		
Total One Time Expenses (\$)		\$13,000
Total Recurring Expenses (\$/year)		\$2,000

Anticipated Impacts of the Use

This CD includes the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an "affected resource." Soils, air, water, wilderness, cultural resources, and socioeconomic resources 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

Turnbull National Wildlife Refuge was established "... as a Refuge and breeding ground for migratory birds and other wildlife..." (Executive Order 7681, July 30, 1937). Additional lands were acquired under the authority of, or to fulfill the purpose of, the Migratory Bird Conservation Act (16 U.S.C. §715a-715r), or through approval of the Migratory Bird Conservation Committee, as an "inviolate sanctuary for migratory birds, or for any other management purpose, for migratory birds." The Refuge is both an important migration stopover in the Columbia Basin, and an important breeding area for migratory waterfowl. The proposed turkey hunt would have minimal impacts to Refuge purposes, for several reasons. The proposed turkey hunt area lies outside major use areas for fall-migrating waterfowl. Disturbance to migratory birds within the hunt area would be low, due to the small number of hunters using the area at any given time, and because hunting is allowed only four days per week. Finally, the fall turkey hunt is outside the breeding season for migratory birds.

Short-term impacts

Direct mortality to target species stemming from Refuge hunts: The proposed turkey hunt would be conducted in line with Washington's Turkey Management Plan (WDFW 2005), which provides management direction for turkeys in the state, and the 2015-2021 Game Management Plan (WDFW 2014). In Washington state, turkeys are managed to provide sustainable sport hunting opportunities, while responding to cases of landowner/turkey conflicts (damage and nuisance complaints). Turnbull NWR lies within WDFW's Northeast Wild Turkey PMU Population Management Unit (PMU 10), which includes Game Management Units (GMU) 101-136. Merriam's and Rio Grande turkeys are abundant in this PMU, and northeastern Washington is known as a world class turkey hunting destination. Collectively, the Northeast PMU accounts for approximately two-thirds of turkeys harvested in Washington state, in the spring and fall seasons. Between 8,000 and 9,000 turkeys have been harvested in the state annually in recent years (WDFW 2021a).

The estimated refuge turkey harvest from the fall hunt would be 25-35 birds. This estimated harvest represents a small fraction of the turkey population in the Northeast PMU, and turkey harvest statewide.

Effects to Nonhunted Wildlife: Non-hunted wildlife would include any non-target birds; small and medium-sized mammals; reptiles, amphibians, and invertebrates. Occasionally, nontarget species are illegally killed by hunters by accident or intentionally. Refuge regulations further mitigate possible disturbance or mortality to non-hunted wildlife. Vehicles would be restricted to roads and the harassment or taking of any wildlife other than the game species legal for the season would not be permitted. The primary effect of turkey hunting to non-hunted species is disturbance. Disturbance effects are described in detail below.

<u>Disturbance to Waterfowl.</u> Turkey hunting would result in some disturbance to fall-migrating waterfowl by hunters walking near wetlands and gunfire, which generally results in a behavioral response by birds. Turkey hunting by its nature involves free roaming on foot throughout a hunting unit.

Numerous studies have confirmed that people on foot can cause a variety of disturbance reactions in wildlife, including flushing or displacement (Erwin 1989, Fraser et al. 1985, Freddy 1986), heart rate increases (MacArthur et al. 1982), altered foraging patterns (Burger and Gochfeld 1991), and even, in some cases, diminished reproductive success (Boyle and Samson 1985). These studies and others have shown that the severity of the effects depends upon the distance of the disturbance to the animal(s) and the disturbance's duration, frequency, predictability, and visibility to wildlife (Knight and Cole 1991).

The variables that were found to have the greatest influence on wildlife behavior were the distance from the animal to the disturbance and the duration of the disturbance. In a review of several studies of the reaction of waterfowl and other wetland birds to people on foot, distances greater than 328 feet (100 meters) generally did not result in a behavioral response (Delong 2002). In most years, only the permanent and semipermanent wetlands hold water and receive use by waterfowl in the fall, until freeze up in late November when they move to rivers and larger, deeper lakes off-Refuge. The frequency of the disturbance by hunters during the fall season (September to November) is a function of hunter density, the size of the potential disturbance zone and the number of days that hunters can potentially access these areas. The area of the Refuge we propose to open to turkey hunting does include wetlands that provide fall waterfowl habitat. The limited-entry turkey hunt would result in very low densities of hunters with a low probability that hunters would enter wetland disturbance zones on any given day. Generally, these wetlands freeze over by late November, so there would be no hunting disturbance to waterfowl during the last month of the turkey season. Furthermore, turkey hunting would be allowed only four days per week and would be limited to three parties of no more than four hunters each. Therefore, most waterfowl disturbance would occur on 70 days during September-December and would result in minor impacts to waterfowl through disturbance due to the small number, wetlands freezing by late-November (not available to waterfowl) and low density of hunters. In addition, those small numbers of waterfowl that may be disturbed could fly to wetlands in areas remaining closed to public use. No significant impacts to waterfowl from turkey hunting would occur. Turkey hunting would not add to lead in the environment since only approved nontoxic shot may be used on the Refuge.

Turkey hunting would cause similar disturbance to wetland-associated species other than waterfowl due to hunters walking near wetlands and gunfire, which generally results in a behavioral response by many animals. By the opening of the fall turkey season, many of the non-waterfowl bird species have migrated out of the area. There is the potential for fall-migrating shorebirds to be present in September through mid-October. The probability that a hunter will spend significant time within wetlands or in adjacent zones extremely low. In summary, disturbance impacts to wetland-associated wildlife as a result of turkey hunting would be negligible to minor.

<u>Disturbance to Bald and Golden Eagles</u>. Bald and golden eagles are Federally protected under the Bald and Golden Eagle Protection Act, as amended (16 U.S.C. 668-668c). The Refuge's large permanent wetlands provide fall migration and wintering habitat for bald eagles until freeze up in late November. Eagle use of the Refuge tracks waterfowl use, which is variable from year to year. Most fall waterfowl use, and therefore eagle use, occurs in years with above average precipitation. Golden eagles are an occasional summer visitor to the Refuge. Neither species breeds on the Refuge. Short-term disturbance impacts to the bald eagle would be expected to

increase inside the Long Lake unit. Some short-term effects to bald eagle use within the hunt unit would also be expected. Wintering populations of bald eagles have shown susceptibility to disturbance resulting in disrupted foraging behavior and changes in social dynamics between other species in the avian scavenger guild (Skagen 1991) and avoidance of areas with high disturbance (Stalmaster and Newman 1978). Stalmaster and Newman (1978) also found that recreational activities occurring within 250 meters of roosting and foraging areas resulted in changes in distribution patterns by displacement to areas of lower human activity. With regards to hunting, Stalmaster and Newman (1978) found that gunshots were the only noises that elicited overt escape behavior by eagles in their study. Edwards (1969) also found that gunshots could be used to flush eagles from their roost (cited in Stalmaster and Newman 1978). The Long Lake Unit includes one large permanent wetland that may utilized by bald eagles for foraging in fall and winter, until freeze up in late November. Hunters would potentially be within 250 meters of this habitat.

The frequency of the disturbance by hunters during the fall turkey season (September 1-December 31) is a function of hunter density, the size of the potential disturbance zone, and the number of days that hunters can potentially access these areas. The area of the Refuge we propose to open to turkey hunting does include wetlands that provide fall waterfowl habitat until freeze-up in late November, and therefore may be used as foraging habitat by bald eagles. Golden eagles are a transient summer visitor to the Refuge and would be expected to occur rarely during the early part of the turkey hunt season. The limited-entry turkey hunt would result in very low densities of hunters (under the reservation system, a maximum of 12 hunters can be present on the hunt units on any given day) with a low probability that hunters would enter wetland disturbance zones on any given day. Generally, these wetlands freeze over by late November, so there would be no hunting disturbance to eagles during the last month of the turkey season. Furthermore, turkey hunting would be allowed only four days per week and would be limited to three parties of no more than four hunters each. Therefore, hunting disturbance would occur on 48 days during September, October, and November, and would result in minor short-term impacts to eagles through disturbance due to the small number and low density of hunters. In addition, any eagles that may be disturbed could fly to wetlands in areas remaining closed to public use. Therefore, there would be no significant impacts to either bald or golden eagles resulting from turkey hunting. In addition, turkey hunting would not add to lead in the environment since only approved non-toxic shot may be used for turkey on the Refuge.

<u>Disturbance to Steppe-Associated Wildlife Species</u>: Impacts to these species associated with the turkey hunting program would result from either the alteration of habitat, or disturbance of wildlife associated with foot travel. Numerous studies have found that bird abundance and species composition are affected by the presence of people on foot. In the mixed-grass prairie ecosystem in Colorado, Miller et al. (1998)

found that specialist species (western meadowlark, vesper sparrows, and grasshopper sparrows) were less common near heavily used recreational trails. Generalist species such as the American robin, brown-headed cowbird, and black-billed magpie were less affected by trail use. They also found that birds were less likely to nest near trails within the grassland ecosystem and that nest predation was greater near trails. For most species, they found impact was greatest within a 246-foot (75 meter) zone of influence. However, these impacts would be expected to be negligible because most steppe-dependent bird species have migrated by the time the turkey season begins; and hunter density would be very low.

Disturbance to Ponderosa Pine-Associated Wildlife Species: The open nature of ponderosa pine forest and the lack of a well-developed shrub layer in most stands, places most tree and snag foraging species well above public use activities on the ground. Most however, are still susceptible to human disturbance. Larger bird species that nest and roost in pine stands, including red-tailed hawks, great-horned owls, and osprey, are especially intolerant of individuals on foot within their territories. Ponderosa pine forest also supports wildlife species that dwell near or on the ground. Turkey hunting would have minimal impacts on ponderosa pine-associated species because the hunting program would involve a small number of individuals and take place outside the breeding season, the time period when disturbance has the greatest potential to affect birds and other animals. No additional facilities are planned to facilitate the turkey hunt other than a small parking area on Mullinix Road. In summary, disturbance impacts to ponderosa pine-associated wildlife as a result of turkey hunting would be negligible to minor.

<u>Disturbance to Riparian-Associated Wildlife Species:</u> Potential impacts of turkey hunting on aspen habitat and associated wildlife include increased disturbance to wildlife from activities occurring in close proximity to riparian areas. Songbirds, woodpeckers, and deer are the primary species groups potentially affected by public use activities in aspen riparian zones. Disturbance to birds by visitors, particularly those on foot, can result in behavioral responses and habitat impacts as previously described for wetland, steppe, and pine forests. In summary, disturbance impacts to riparian-associated wildlife as a result of turkey hunting would be negligible to minor.

Effects of Turkey Harvest to Native Wildlife Species: Wild turkeys eat many different kinds of plants, seeds and fruits, and invertebrates (insects, spiders, snails), usually focusing their diets on the food items that are most available. In general, the diet of an adult turkey is made up of 75% plants and 25% insects while the diet of a poult ranges from 75% to 90% insect matter. During the winter, turkeys in eastern Washington gather into large flocks, sometimes of 100 or more birds, and are commonly found around a source of artificial feed like oat hay or other grain (WDFW 2005). Therefore, the diets of turkeys overlap with the diets of many species of native ground-foraging landbirds. The native species whose diets overlap with wild turkey

depends on season, since turkeys consume more green vegetation and animal matter in spring and summer, and more seeds and nuts in fall and winter. In Washington, Merriam's turkeys (the most common subspecies in eastern Washington) eat grass leaves and seeds, ponderosa pine seeds, acorns, grasshoppers, forbs, and fruits such as wild strawberry (WDFW 2005). As noted above, ponderosa pine stands provide important foraging habitat for both migrant and resident bird species, including black-capped and mountain chickadees, red crossbills, pygmy nuthatches, hairy woodpeckers, northern flickers, Lewis' woodpecker, and western bluebird. In northeastern Washington, Merriam's turkeys are known to feed on ponderosa pine seed in the fall (WDFW 2005). Ponderosa pine seed are an important food source for some resident native bird species, as well as small mammals. It is possible that wild turkey compete with native species for food resources; however, little research has been done on the topic to date. It is therefore possible that reducing Refuge turkey populations may have beneficial effects for native wildlife species that depend on this food source, but such effects would be minor due to the small number of turkeys that would be harvested.

Habitat and Vegetation: No new facilities will be constructed expressly for the turkey hunting program other than a small parking area on Mullinix Road in an already disturbed area; therefore, there would be no direct loss of habitat. Minor impacts to vegetation would occur through minor trampling and the potential of hunters spreading invasive species. The small number of hunters and hunt days per year would result in a negligible impact to vegetation.

Impacts to listed species: There are three federally ESA-listed (Threatened) species where the current species ranges overlap with Turnbull NWR: bull trout, yellow-billed cuckoo, and a plant species, Spalding's silene. A Federal Candidate species, monarch butterfly, also occurs on the Refuge. An ESA Section 7 Consultation was completed prior to establishing the turkey hunt (USFWS 2022) and has been updated to include the proposed expansion area. Yellow-billed cuckoo and bull trout have never been observed on the Refuge, and suitable habitat for these species does not exist on the Refuge. Therefore, turkey hunting would have no effect to these species.

Spalding's silene occurs in the southeast corner of the Refuge, which lies outside the proposed turkey hunt area. Even if Spalding's silene were to occur within the hunt area, the probability that a hunter will trample a plant of this species is very low and considered discountable, due to of the low density of hunters in steppe habitat. The hunting season also takes place during the period of plant dormancy, so any potential impacts are also expected to be insignificant. Therefore, turkey hunting may affect, but is not likely to adversely affect, Spalding's silene.

The host plant for monarch butterfly, showy milkweed, occurs on the Refuge, and monarch butterflies have been documented on the Refuge. However, by the fall

hunting season (September 1 through December 31), showy milkweed has senesced and monarch butterflies would not likely be present on the refuge. Therefore, we have determined that turkey hunting may jeopardize, but is unlikely to jeopardize, monarch butterfly.

Impacts to other priority public uses: Hunting has the potential to disturb Refuge visitors engaged in other priority public uses. To minimize this potential conflict, turkey hunting would be conducted outside of the main public use area. The main public use area would remain closed to all hunting. Because of this spatial separation, and the fact that relatively few turkey hunters would be on the Refuge at a given time (3 parties of up to 4 hunters each), direct impacts to other users are expected to be minor.

No significant effects to roads, trails, or other infrastructure from the hunting program are foreseen. Normal road, trail, and facility maintenance will continue to be necessary. Additional facility construction or upgrade, if needed, is addressed in the Availability of Resources section.

Long-term impacts

Long-term impacts to Refuge wildlife populations as a result of turkey hunting are expected to be negligible. There would be indirect beneficial impacts of Refuge hunting over the long term. Hunting can contribute to wildlife and habitat conservation and provide educational and sociological benefits. The hunting community in general remains the largest support base for funding land acquisitions in the Refuge System through the purchase of Duck Stamps. Refuges provide an opportunity for a high-quality waterfowl hunting experience to all citizens regardless of economic standing. Many Refuges have developed extensive public information and education programs bringing hunters into contact with Refuge activities and facilitating awareness of wildlife issues beyond hunting.

Public Review and Comment

This Compatibility Determination was prepared in conjunction with a Categorical Exclusion as a minor amendment to the 2022 Turkey Hunting Plan. This Draft Compatibility Determination will be released for a 60-day public review and comment period in conjunction with the release of the 2024-2025 Sport Hunting and Fishing Regulations (Proposed Rule) to comply with the National Environmental Policy Act and with Service policy, before expanding turkey hunting on the Refuge. A hard copy of this document will be posted at the Refuge Headquarters and will be made available electronically on the refuge website:

https://www.fws.gov/refuge/Turnbull/ and in the Federal Register as part of the 2024-2024 Sport Hunting and Fishing Regulations (Proposed Rule). The public may submit comments or requests for additional information through any of the following

methods:

Email: HuntFishRuleComments@fws.gov Include "Turnbull Turkey Hunt" in the subject line of the message.

Fax: Attn: Turnbull Hunt Plan (509) 235-4723.

U.S. Mail: U.S. Fish and Wildlife Service, Attn: Refuge Manager, Turnbull NWR, 26010 S. Smith Road, Cheney, WA 99004.

Concerns expressed during the public comment period will be addressed in the final Compatibility Determination.

Determination

Yes

Stipulations Necessary to Ensure Compatibility

- 1. Hunting will be conducted in accordance with all federal, state, and refugespecific regulations.
- 2. All shot used by, or in possession of, turkey hunters must be federally approved non-toxic shot.
- 3. Turkey hunting would be allowed four days per week (for example: Saturdays-Sundays, Wednesdays-Thursdays) during the State fall season.
- 4. We require turkey hunters reserve hunt days in advance through the WDFW Hunt By Reservation Only online system.
- 5. A maximum of three turkey hunting parties, with a limit of up to four hunters per party, would be allowed to hunt during each two-day hunt period.
- 6. Turkey hunters, with the exception of disabled hunters, will only be allowed access to the Long Lake Unit by foot through the parking area gate on Mullinix Road.
- 7. Turkey hunters with disabilities must apply to the Refuge Manager for a Special Use Permit in advance of their hunt date that would allow them to use a vehicle or e-bike to access the hunt area. Only the vehicle or e-bike that is being used by a disabled hunter may drive into the refuge, and vehicles and e-bikes are restricted to existing/maintained roadways within the hunt area.
- 8. Camping, overnight parking, fishing, boating, horseback riding, fires, and onice activities are not permitted on the refuge. ATV, ORV and snowmobile use is prohibited on all areas of the refuge.
- 9. Hunters must pack out used shotshells and other trash.
- 10. Hunt areas and no hunting zones will be well posted.
- 11. Refuge staff will conduct law enforcement, maintain hunting facilities, and monitor wildlife impacts. The refuge will ensure safety and minimize conflict with other priority public uses by providing information about hunting boundaries and seasons to the general public and those engaging in other refuge programs.

Justification

The stipulations outlined above would help ensure that the use is compatible at Turnbull National Wildlife Refuge. Turkey hunting, as outlined in this compatibility determination, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge. Based on available science and best professional judgement, the Service has determined that the turkey hunting at Turnbull National Wildlife Refuge, in accordance with the stipulations provided here, would not materially interfere with or detract from the fulfillment of the

National Wildlife Refuge System mission or the purpose of the Turnbull National Wildlife Refuge. Rather, appropriate and compatible turkey hunting would be the use of the Refuge through which the public can develop an appreciation for wildlife and wild lands.

Signature of Determination

Refuge Manager Signatu	re and Date
	Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2039

Literature Cited/References

Altman, B. and A. Holmes. 2000. Conservation strategy for landbirds in the Columbia Plateau of Eastern Oregon and Washington. Version 1.0. Oregon-Washington Partners in Flight, 97 pp.

Boyle, S. A. and F. B. Samson. 1985. Effects of nonconsumptive recreation on wildlife: a review. Wildl. Soc. Bull. 13: 110–116.

Burger, J. and Gochfeld, M. 1991. Human activity influence and diurnal and nocturnal foraging of sanderlings (*Calidris alba*). Condor 93: 259-265.

Climate Impacts Group. 2009. The Washington Climate Change Impacts Assessment. M. McGuire Elsner, J. Littell, and L. Whitely Binder (eds). Center for Science in the Earth System, Joint Institute for the Study of the Atmosphere and Oceans, University of Washington, Seattle, Washington. Available at: https://cig.uw.edu/wp-content/uploads/sites/2/2020/12/wacciareport681-3.pdf

Cole, D.N. and R.L. Knight. 1990. Impacts of recreation on biodiversity in wilderness.

Utah State University. Logan, UT.

Daubenmire, R. 1952. Forest vegetation of northern Idaho and adjacent Washington, and its bearing on concepts of vegetation classification. Ecological Monographs 22: 301-330

Daubenmire, R. 1970. Steppe vegetation of Washington. Washington Agricultural Experiment Station, Pullman, Washington. Technical Bulletin 62. 131 pp.

Delong, A. K. 2002. Managing visitor use and disturbance of waterbirds: a literature review of impacts and mitigation measures. Prepared for Stillwater National Wildlife Refuge. Appendix L In: Stillwater National Wildlife Refuge Complex final environmental impact statement for the comprehensive conservation plan and boundary revision (Vol. II). Dept. of the Interior, U.S. Fish and Wildlife Service, Region 1, Portland, OR.

Edwards, C. C. 1969. Winter behavior and population dynamics of American eagles in western Utah. Ph.D. Thesis. Brigham Young Univ., Provo. 157pp.

Erwin, R, M. 1989. Responses to human intruders by birds nesting in colonies: Experimental results and management guidelines. Colon. Waterbirds 12: 104-108.

Franklin, J. F. and C. T. Dyrness. 1973. The natural vegetation of Oregon and Washington. Oregon State University Press, Corvallis.

Fraser, James D., L.D. Frenzel, and John E. Mathisen. 1985. The impact of human activities on breeding bald eagles in north-central Minnesota. J. Wildl. Manage. 49: 585-592.

Freddy, D. J. 1986. Responses of adult mule deer to human harassment during winter. Pages 286 In Comer, R.D., Baumann, T. G., Davis, P., Monarch, J.W., Todd, J., VanGytenbeek, S., Wills, D., and Woodling, J., eds. Proceedings II. Issues and technology in the management of impacted western wildlife: proceedings of a national symposium. Thorne Ecol. Inst., Boulder, Colorado.

Headwaters Economics 2022. Socioeconomic Profile Tool. Available at: https://headwaterseconomics.org/tools/usfws-indicators/

Holstine, Craig, J. Galm, and R. Bruce. 1992. A study of cultural resources on Turnbull National Wildlife Refuge, Spokane County, Washington. Eastern Washington University, Reports in Archaeology and History 100-71. Archaeological and Historical Services, 145 pp.

Ivey, G.L., and C.P. Herziger. 2006. Intermountain West Waterbird Conservation Plan, Version 1.2. A plan associated with the Waterbird Conservation for the Americas Initiative. Published by U.S. Fish and Wildlife Service Pacific Region, Portland, Oregon.

Kelly, T.R., P.H. Bloom, S.G. Torres, Y.Z. Hernandez, R.H. Poppenga, W.M. Boyce, C.K. Johnson. 2011. Impact of the California lead ammunition ban on reducing lead exposure in golden eagles and turkey vultures. PLoS ONE. 6(4): e17656. doi:10.1371/journal.pone.0017656.

Knight, R. L. and D. N. Cole. 1991. Effects of recreational activity on wildlife in wildlands. In: Transactions of the North American Wildlife and Natural Resources Conference 56: 238-247.

Kramer, J.L., P.T. Redig. 1997. Sixteen years of lead poisoning in eagles, 1980-95: An epizootiological view. Journal of Raptor Research. 31(4): 327-332.

MacArthur, R.A., Geist, V., and Johnston, R. H. 1982. Cardiac and behavioral responses of mountain sheep to human disturbance. J. Wildl. Manage. 46: 351-358.

Miller, S. G., R. L. Knight, and C. K. Miller. 1998. Influence of recreational trails on breeding bird communities. Ecological Applications 8: 762-769.

Skagen, S. K., R. L. Knight, and G. H. Orians. 1991. Human disturbance of an avian scavenging guild. Ecological Applic. 1:215–225

Soper, C. 1999. Columbia Plateau Ecoregional Plan. Unpublished draft. The Nature Conservancy. Seattle, Washington.

Stalmaster, M. V. and J. R. Newman. 1978. Behavioral responses of wintering bald eagles to human activity. J. Wildl. Manage. 42:506-513.

Stauber, E., N. Finch, P.A. Talcott, and J.M. Gay. 2010. Lead poisoning of bald (Haliaeetus leucocephalus) and golden (Aquila chrysaetos) eagles in the US inland Pacific Northwest- An 18-year retrospective study: 1991-2008. Journal of Avian Medicine and Surgery 24:279-287. doi: http://dx.doi.org/10.1647/2009-006.

USFWS. 2022. Turnbull National Wildlife Refuge Turkey Hunting Plan. Cheney, WA and Portland, OR.

U.S. Fish and Wildlife Service. 2009. Environmental Assessment for an Elk and Youth Waterfowl Step-down Hunt Plan on the Turnbull National Wildlife Refuge. Cheney, WA and Portland, OR.

U.S. Fish and Wildlife Service. March 2007. Turnbull National Wildlife Refuge Comprehensive Conservation Plan. Available at:

https://ecos.fws.gov/ServCat/DownloadFile/164241

WDFW. 2021a. 2020 Statewide turkey harvest statistics. Available at: https://wdfw.wa.gov/hunting/management/game-harvest/2020/turkey-statewide

WDFW. 2021b. Turkey Takeover. Hunting Highlights, February 12, 2021. Available at: https://www.mywdfw.com/hunting-highlights-tt-ch1-2021/

Washington Department of Fish and Wildlife. 2021c. Washington Game Bird and Small Game Hunting Regulations, 2021. Washington Department of Fish and Wildlife, Olympia, Washington, USA. Available at: https://wdfw.wa.gov/publications/02265

Washington Department of Fish and Wildlife. 2014. Game Management Plan, July 2015-June 2021. Wildlife Program, Washington Department of Fish and Wildlife, Olympia, Washington, USA. Available at:

https://wdfw.wa.gov/sites/default/files/publications/01676/wdfw01676.pdf

Washington Department of Fish and Wildlife. 2005. Wild Turkey Management Plan. Wildlife Program, Washington Department of Fish and Wildlife, Olympia, Washington, USA. Available at: https://wdfw.wa.gov/publications/00425

