

Consultation Package Builder User Guide – Wolverine Consultations in Idaho
Prepared by the Idaho Fish and Wildlife Service Office
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Document Purpose

The Information for Planning and Consultation (IPaC) website is a nationwide action planning tool that streamlines the U.S. Fish and Wildlife Service (Service) environmental review process. It can be accessed at: <https://ipac.ecosphere.fws.gov/>. Consultation Package Builder (CPB) is a new tool in IPaC that provides an interactive, step-by-step process to help action agencies prepare a full consultation package (see Figure 1). The document herein follows the same organizational headings as the [Idaho CPB User Guide](#) (USFWS 2023, *entire*¹). Use of the CPB tool is not required; whether or not the CPB tool is used, the Service recommends following these steps when writing a biological assessment (BA) or biological evaluation (BE) in Idaho. This format ensures consistency across the Service's consultations, and it enables a faster evaluation by the Service's consultation biologists. *This document does not repeat in-depth BA/BE detail for every CPB step, instead it focuses on recommended wolverine considerations in each step.*

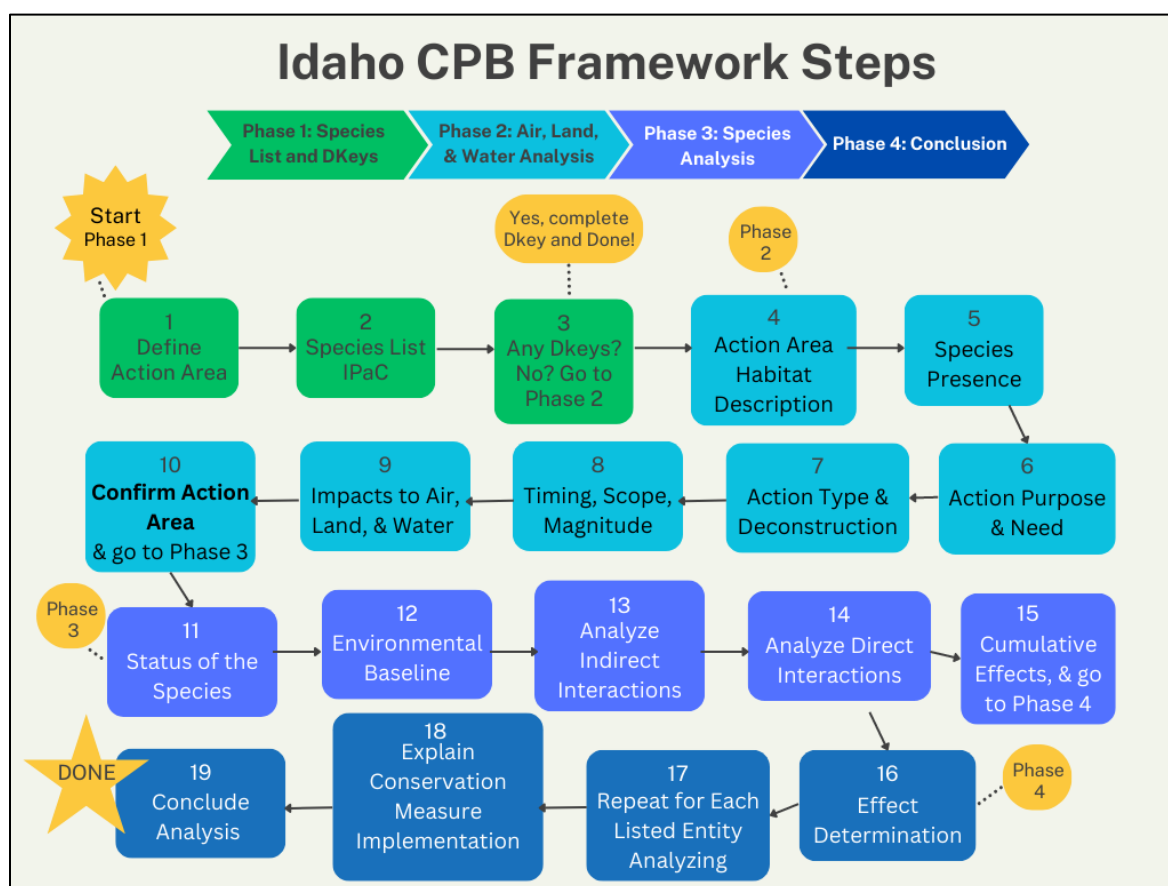


Figure 1. Steps for following the CPB framework within or outside of the online tool.

¹ U.S. Fish and Wildlife Service (USFWS), 2023. Idaho Consultation Package Builder Framework User Guide. Prepared by the Idaho Fish and Wildlife Service Office, August 2023. 15 pp.

Phase 1. Species List (IPaC), Programmatic Biological Opinions, and Determination Keys

This first phase of the CPB framework is to use IPaC to generate a species list and to check for any programmatic consultations or determination keys (Dkey) that may be available and relevant to your proposed action. For steps 1-19, the [Idaho CPB User Guide](#) provides more in-depth information for each of these steps, which is summarized here.

Step 1. Action Area

The action area includes all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 Code of Federal Regulation [CFR] 402.02). Some action agencies may choose in the future to delineate wolverine analysis or management units. Although wolverine analysis or management units will be useful for tracking baseline conditions, changes over time, and guiding wolverine management, they are not equivalent to the action area, which is where the proposed action is expected to modify the land, water, or air .

Keeping the information described above in mind, if in the future any wolverine management or analysis units are delineated, these units may be included in whole within the action area, or the action area may only overlap a portion of the unit. For example, if an action agency's proposed activities in one area cause a change in the agency's management activities in another area of a unit (e.g., closing some roads to allow other roads for accessing the Project to be open), because those management activities are conservation measures proposed by the action agency. then both areas are included in the action area for the proposed action. Likewise, the action area may include areas outside of management units for wolverine (i.e., is not limited to them). BAs or BEs that refer to wolverine analysis or management units can become confusing for biologists delineating the action area, and it is important to understand the distinction between the two. The [Idaho CPB User Guide](#) includes more detailed information to help with this distinction.

Step 2. Official Species List

The Service recommends requesting all official species lists using the IPaC system. The Federal action agency is responsible for verifying the accuracy of the species list if they have not begun preparation of the biological assessment within 90 days of receipt of (or concurrence with) the species list [CFR §402.12(e)]. Preferably, verification will also occur by requesting a new species list in IPaC.

Step 3. Programmatic Consultations & Determination Keys

Check with your local Service field office if there are any standing analyses² or programmatic consultations that may be relevant to the proposed action and wolverines. To analyze your proposed action under an existing standing analysis or programmatic, the proposed action in your BA or BE must align with the design criteria, including any conservation measures, considered in the standing analysis or programmatic. Design criteria should be described with enough detail to ensure consistency with the

² The standing analysis is a consultation tool designed to reduce the time necessary to complete consultation [including biological opinions] for a particular set of projects. It operates similarly to a programmatic or batched consultation, without dependence on a programmatic or batched biological assessment (BA) from an action agency to initiate the analysis.

standing analysis or programmatic biological opinion. As of the writing of this document January, 2025, there are no wolverine existing standing analyses available in IPaC for Idaho as a Dkey. In addition, there are currently no statewide or rangewide programmatic biological opinions for wolverine.

Phase 2. Air, Land, & Water Analysis

The second phase of the CPB framework involves deconstructing the proposed action's activities and structures, analyzing the impacts to the air, land, and water from those activities and structures, and confirming the action area. You will complete the wolverine effects analysis in Phase 3.

Step 4. Habitat Description

Describe the habitat types present in the action area (e.g., coniferous forest, wetland and riparian areas, meadows, burned areas, logged areas, etc.), including habitat quality and distribution. This is the habitat in general, and it is not specific to wolverines. See the [Idaho CPB Guide](#) for more information.

Step 5. Species Presence

Determine the probable presence of a wolverine in the action area considering the entire duration of the effects from the proposed action to air, land, and water, including effects that are likely to occur later in time. The combination of effects occurring during the proposed action's implementation and those effects occurring later in time can be thought of as a "lifetime of action effects." Some wolverine questions and considerations may include: Could a wolverine be present at some time of the year in any part of the action area during the lifetime of action effects? How might wolverines use this area (e.g., dispersal, denning, feeding, caching, and/or travel between habitat types)? Where is the action area relative to other known wolverine-occupied or dispersal areas.

Step 6. Project Purpose

Explain the purpose for the proposed action, including a brief description of all proposed activities and structures and any authorities or program under which the proposed action is being developed (e.g., Healthy Forest Initiative). The physical structures such as roads should be discussed in relation to why they are necessary to accomplish the defined purpose and need.

Step 7. Action type and Deconstruction

Describe the proposed action type, associated activities, and associated structures. A menu of activities is available for selection in IPaC. An example of the selections that action agencies can make include:

Action Type: timber harvest.

Activities: Road construction, yarding, etc.

Structures: Haul roads, staging areas, etc.

Describe and map the location of each activity and structure identified during this step.

Step 8. Timing, Scope, and Magnitude

Describe the timing, scope (size or extent), and magnitude (relative size or extent) of activities and associated potential stressors to air, land, or water (not species). Design features of the proposed action are important considerations in wolverine consultations, such as time of year and number of years. The Service recommends including the following in this section to support the wolverine analysis later: implementation and completion dates, phasing information, frequency and intensity of the activities

and structures, seasonal considerations, etc. This is not an exhaustive list of considerations; include any other timing, scope, and magnitude considerations that may be relevant.

Step 9. Impacts to Air, Land, & Water (Not Wolverine)

Describe the potential impacts from each stressor (e.g., decrease in vegetation) to air, land, and water, including any design features or conservation measures that will be implemented for this project that to completely avoid the stressor. Do not include potential impacts to wolverines when describing the potential impacts from each stressor to the air, land, or water. All avoidance and minimization conservation measures that are part of the proposed action should be included when delineating the action area (including off-site conservation measures that are considered part of the proposed action). If a stressor is completely avoided by a conservation measure, describe how the conservation measure avoids the stressor to the air, land, or water; this stressor will not be carried forward in the rest of the analysis, including the wolverine analysis, because it has been completely avoided. Note that some wolverine-specific design features or conservation measures may minimize the effects to the air, land, or water as well as have benefits to wolverines. For example, conducting a timber harvest action in separate phases minimizes the effects to the environment and to wolverines. Specifics about how the proposed conservation measures that will be implemented for this project to minimize impacts to wolverines is described in Phase 3 (also see Appendix: Example Wolverine Conservation Measures [*In review*]).

Step 10. Confirm Action Area

Considering the proposed activities, structures, and stressors to air, land, and water as well as the proposed conservation measures (i.e., everything related to the proposed action) **confirm** the final action area. Do not consider wolverine presence or use when confirming the action area.

Phase 3. Wolverine Analysis

The third phase of CPB focuses on the direct and indirect interactions between wolverines and the impacted environment from the proposed action's deconstructed activities and structures.

Step 11. Status of Wolverine

Describe the following:

- (a) Legal status of the wolverine.
- (b) Recovery outline, Species Status Assessment, and relevant addendums.
- (c) Wolverine life history.
- (d) Wolverine resource needs (the physical and biological features a wolverine depends on to fulfill its life cycle).
- (e) General conservation needs across the wolverine listed entity.

Any potential effects of fire and climate changes to wolverines should be discussed in this section as well. In CPB, (a) to (c) (i.e., the legal status, recovery plans, and life history sections) are automatically filled out. Conservation needs for the species, (e) can be summarized from the wolverine Species Status Assessment (SSA) available at: <https://www.fws.gov/species/north-american-wolverine-gulo-gulo-luscus>.

As of the writing of this document (January 2025), resource needs (d) are not yet automated for wolverine in CPB and need to be manually entered. Resource needs are features that are on the landscape (e.g., prey or forage), not the lack of specific attributes (e.g., noise or invasive species). Identifying the resources a species needs is a fundamental step in the impact analysis. The Idaho Fish and Wildlife Office (IFWO) has developed the following DRAFT example resource needs for this document that can be used in the BA/BE or manually enter in CPB. The draft example resource needs are based on the Service's most recent wolverine SSA addendum (USFWS 2023, entire). When the Service publishes resource needs in CPB, they will become available automatically in the CPB system. The resource needs help provide context for the status of wolverine habitat in the action area and facilitate connecting the dots throughout the species habitat effects analysis (impact → exposure → response → effect), including the reasoning behind some wolverine-specific conservation measures.

Wolverine resource needs (how to manually enter/copy and paste the below in CPB):

(A) Food – carrion, birds, mammals, fish, eggs, and insects

- 1) Search for 'Food' and select as a resource need.
- 2) Select the life stages that require food: juveniles, sub-adults, and adults.
- 3) Write in the text box the physical attributes of 'food'. For example, "Ungulate carrion (especially in winter), plus a variety of small, medium, and large animals including small mammals, medium-sized mammals, birds, fish, and eggs." Wolverines need prey for feeding.
- 4) Write in the text box why wolverine need food. For example,

"Wolverines are primarily carnivorous scavengers and predators, switching between food sources depending on availability (USFWS 2018, p. 40). They have a high basal metabolic demand compared to other mammalian carnivores (USFWS 2018, p. 44). Wolverines will opportunistically use the most energy-efficient food available and shift food sources seasonally. For example, wolverines tend to consume food with a higher caloric content (like ungulates) during the winter.

Ungulate carrion is believed to be the wolverine's most important winter food source, shifting to mostly small mammals in the summer. Wolverines will consume a variety of small, medium, and large animals and animal parts including but not limited to the following: marmots, ground squirrels, rabbits, snowshoe hares, ptarmigans, porcupine, mice, beaver, fish, ducks, seals, gulls and their eggs, lemmings, mountain goats, bighorn sheep, antlers, bones, and skulls (USFWS 2018, p. 42). Wolverines have also been documented consuming berries (Koskela 2012, p. 201; Banci 1981, p. 93). Although vegetation has been recorded in the diet of wolverines, it is likely consumed incidentally with carrion and prey rather than the focus of foraging (Yates and Copeland 2017, as cited in USFWS 2018 p. 41). When hunting larger game, wolverines will attack pregnant females as well as young, wounded, or sick animals. In most cases, wolverines are not considered effective predators of large game animals, and benefit from carrion that die during winter or are killed by other carnivores or humans.

Food caching is a critical behavior for the survival of both sexes of wolverine (USFWS 2018, p. 43). Wolverines will move carcasses large distances to cache them. Food caches are especially important for lactating females and help increase newborn survivorship. Cache sites vary in size and complexity, from a single feeding station to cache complexes that include feeding stations, latrines, resting sites, and climbing trees. Cache sites are usually in snow, but they have also been found under boughs of large

spruce trees or under rock piles. Wolverines also appeared to select cache sites and resting areas that offered good visibility of approaching competitors or predators.”

Literature cited:

Banci, V. 1987. Ecology and behaviour of wolverine in Yukon. M.S. Thesis, Simon Fraser University; Burnaby, British Columbia, Canada.

Koskela, A., Kojola, I., Aspi, J. and Hyvärinen, M. 2013. The diet of breeding female wolverines (*Gulo gulo*) in two areas of Finland. *Acta theriologica*. 58: 199-204.

USFWS. 2018. Species Status Assessment Report for the North American Wolverine (*Gulo gulo luscus*). U.S. Fish and Wildlife Service, Mountain-Prairie Region, Lakewood, CO. 179 pp.’

(B) Vegetation – forage and vegetation cover

- 1) Search for ‘Vegetation’ and select it as a resource need.
- 2) Select the life stages that require vegetation: juveniles, sub-adults, and adults.
- 3) Write in the text box the physical attributes of ‘vegetation’. For example, ‘Uprooted or fallen trees and logs, brush piles, log jams, tree wells, low hanging branches that touch the ground, variable density forest stands with vertical structure for micro-habitat features that provide cold, dark environments.’ Wolverines need vegetation for denning, sheltering/hiding, and feeding/hunting.
- 4) Write in the text box why wolverines need vegetation. For example,

“In the southern portion of their range, wolverines will seasonally shift cover types preferring montane coniferous forest in the winter and higher elevation talus and rock in the summer months (Copeland 1996, p. iv). Steep terrain with tree cover, high elevation meadows (roughly 5,900 to 11,500 feet), boulder or talus fields, and avalanche chutes with debris are important for wolverine den site selection (Inman et al. 2012, p. 785; USFWS 2018, p. iv). Wolverines can use uprooted or fallen trees and old slash piles containing a mix of smaller and larger logs (Copeland 1996, p. 95; USFWS 2018, p. 38; Scrafford and Ray 2022, p. 6) and soft snow near trees (Copeland 1996, p. 44) for denning. Other natal den sites in talus rock were surrounded by trees (Copeland 1996, p. 94). Wolverines do not selectively use any specific vegetation type but will select for variable density stands with vertical structure that provide micro-habitat features that provide cold, dark environments (van der Veen 2017, p. III).

Wolverines are omnivorous scavengers and predators; therefore, their food items and prey species are found in a variety of habitat types from alpine meadows to forested areas (Inman et al. 2013, p. 287, Table S1). Wolverines hunt small mammals in heavy cover such as brush piles, log jams, and tree wells (Hornocker and Hash 1981, p. 1298). Additionally, habitat modeling has shown that wolverines select for areas near forest edges, which may provide a greater diversity or abundance of potential prey (Aubry et al. 2023, p. 110). Vegetation may be used in addition to snow and geographic features to cache food. Food caches are sometimes found under boughs of large spruce trees (Wright and Ernst 2004, p. 62), under logs (Inman et al. 2013, p. 287, Table S1) and in peat bogs (USFWS 2018, p. 43). Wolverines also

often use logs when avoiding predators such as wolves (Grinnell 1920 and Boles 1977 as cited in Copeland 1996, p. 44) and trees for escape cover while dispersing (Inman et al. 2013, p. 287, Table S1.).”

Literature Cited:

- Aubry K.B., C.M. Raley, A.J. Shirk, K.S. McKelvey, and J.P. Copeland. 2023. Climatic conditions limit wolverine distribution in the Cascade Range of southwestern North America. *Canadian Journal of Zoology*. 101(2): 95-113.
- Copeland, J.P. 1996. Biology of the Wolverine in Central Idaho. Master of Science. University of Idaho. Moscow, ID. 153 pp.
- Hornocker, M.G., and H.S. Hash. 1981. Ecology of the wolverine in northwestern Montana. *Can. J. Zool.* 59: 1286–1301.
- Inman, R.M., A.J. Magoun, J. Persson, and J. Mattisson. 2012. The wolverine’s niche: linking reproductive chronology, caching, competition, and climate. *Journal of Mammalogy* 93: 634–644.
- Inman, R.M., B.L. Brock, K.H. Inman, S.S. Sartorius, B.C. Aber, B. Giddings, S.L. Cain, M.L. Orme, J.A. Fredrick, B.J. Oakleaf, K.L. Alt, E. Odell, and G. Chapron. 2013. Developing priorities for metapopulation conservation at the landscape scale: Wolverines in the Western United States. *Biological Conservation* 166: 276–286.
- Krott, P. 1960. Ways of the wolverine. *Natural History* 69:16–29.
- Scrafford, M., and J. Ray. 2022. Wolverine Denning Ecology and Ontario’s Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales: FAQ and Recommendations. Wildlife Conservation Society.
- U.S. Fish and Wildlife Service. 2018. Species status assessment report for the North American wolverine (*Gulo gulo luscus*). Version 1.2. U.S. Fish and Wildlife Service, Mountain-Prairie Region, Lakewood, CO.
- van der Veen, B., Mattisson, J., Persson, J., Zimmermann, B., and Odden, J. 2017. Where is the refrigerator? A spatial approach to wolverine (*Gulo gulo*) good hoarding behavior in Scandinavia. Master in Applied Ecology. Inland Norway University of Applied Sciences. Oppang, Norway. 30 pp.
- Wright, J.D., and Ernst, J. 2004. Wolverine, *Gulo gulo luscus*, resting sites and caching behavior in the boreal forest. *Canadian Field-Naturalist* 118: 61-64.

(C) Cover - dens and non-vegetation shelter

- 1) Search for ‘Cover’ and select as a resource need.
- 2) Select the life stages that require ‘cover’: juveniles, sub-adults, and adults.
- 3) Write in the text box the physical attributes of ‘cover’. For example, ‘Boulders and boulder fields, talus slopes, rock piles, rock crevices and caves, deep ravines, and avalanche chutes are all typically found in rugged terrain.’ Wolverines need cover for denning, sheltering (i.e., rendezvous sites), and feeding/hunting.
- 4) Write in the text box why wolverines need ‘cover’ and hard shelter. For example,

“Wolverines tend to establish home ranges and den sites (Appendix C) in high elevation areas with rugged terrain (a measure derived from changes in elevation and the irregularity of the land surface).

Rugged terrain contains habitat features such as boulder fields, talus slopes, and rock crevices that provide structures wolverines use for cover, denning, foraging, and food caching (USFWS 2018, pp. 34-35). Snow tunnels used for denning often extend down to structural features such as rocks, stones, fallen trees, root wads, slash piles containing a mix of smaller and larger logs, and deep ravines (likely for both natal and maternal dens; USFWS 2018, p. 28; Scrafford and Ray 2022, p. 6). These features offer dry, insulated, and secure cavities that enhance the protection that dens provide to a nursing female and her young (USFWS 2018, pp. 34-35). Rendezvous sites are also typically found where rugged terrain features or cover (such as large boulder talus, riparian areas with mature overstory and dense timber deadfall, rock caves, and boulders) exist, providing security to young wolverines while the adult female hunts for food (USFWS 2018, p. 26). Additionally, wolverines use hard cover features for caching and hunting. Caching occurs in both summer and winter, and while snow is often used for caching, wolverines will also hide their cache in crevices in rock piles, under large tree boughs, and in peat bogs (USFWS 2018, p. 43)."

Literature Cited:

Scrafford, M., and J. Ray. 2022. Wolverine Denning Ecology and Ontario's Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales: FAQ and Recommendations. Wildlife Conservation Society.

U.S. Fish and Wildlife Service. 2018. Species status assessment report for the North American wolverine (*Gulo gulo luscus*). Version 1.2. U.S. Fish and Wildlife Service, Mountain-Prairie Region, Lakewood, CO.

(D) Snow

- 1) Search for 'Snow' and select as a resource need.
- 2) Select the life stages that require 'snow': juveniles, sub-adults, and adults.
- 3) Write in the text box the physical attributes of 'snow'. For example, persistent snow that is present on the landscape throughout the winter into late spring (May 15). Wolverine need snow for denning (deep snow) and feeding/caching (indicator used in modeling of persistent spring temperatures cold enough to preserve caches).
- 4) Write in the text box why wolverines need 'snow'. For example,

"Wolverines rely on persistent snow (deep snow lasting through May 15th) for a variety of behaviors, including denning, sheltering, foraging, and food caching. Their snow-adapted morphology is thought to provide wolverines with a competitive advantage over other carnivores in cold climates. These morphological features include large feet suitable for travel through deep snow, dense fur that readily sheds frost, and a strong jaw structure that allows them to feed on frozen flesh and crush bone (USFWS 2018, pp. 4-5). Persistent snow also provides security for denning and for food caching throughout the natal (birth and newborn) and maternal (nursing and raising young) seasons (January 15 to May 15). Copeland et al. (2010, p. 240) found that nearly all den sites fell within areas with persistent snow cover. Deep snow is also important for denning. With the exception of one den site that had melted out by May 15, all den sites examined within Glacier National Park had snow cover between 15.8 inches and 4.6 feet (USFWS 2018, pp. 35-36). Wolverine maternal and natal dens are often tunnels dug into deep snow that extend down into structures such as rock crevices and offer protection from predators and

insulation from the environment (Aronsson 2017, p. 46, USFWS 2018, p. 28). Newborn wolverines are born with lighter, less dense fur than adults and are likely to have a more limited ability to control their internal temperature (Barnett and Mount 1967, p. 439). Snow creates a thermo-insulating layer (Formozov 1963, pp. 7-8, 108-110) that helps protect kits from cold winter temperatures. During the natal period of den site use when females give birth and are lactating, females will move short distances and do not need to bring food to young (Aronsson 2017, p. 46). This time period generally coincides with snow cover and favorable conditions for food caching. Cached food provides important energy for female wolverines during the lactation period and helps increase newborn survival (Inman et al. 2012, p. 640).”

Literature Cited:

- Aronsson, M. 2017. ‘O Neighbour, Where Art Thou? Doctoral Thesis No. 2017:24. Swedish University of Agricultural Sciences, Department of Ecology; Uppsala, Sweden.
- Barnett, S.A. and L.E. Mount. Resistance to cold in mammals. Pp. 411–477 in Thermobiology [A.H. Rose (ed.)]. Academic Press Inc.; New York, New York.
- Copeland, J.P., K.S. McKelvey, K.B. Aubry, A. Landa, J. Persson, R.M. Inman, J. Krebs, E. Lofroth, H. Golden, J.R. Squires, A. Magoun, M.K. Schwartz, J. Wilmot, C.L. Copeland, R.E. Yates, I. Kojola, and R. May. 2010. The bioclimatic envelope of the wolverine (*Gulo gulo*): do climatic constraints limit its geographic distribution? Canadian Journal of Zoology 88:233–246.
- Formozov, A.N. 1963. Snow cover as an integral factor of the environment and its importance in the ecology of mammals and birds. Originally published in 1946 in Materials for Fauna and Flora of the USSR New Series 5:1–152 by Moscow Society of Naturalists, Moscow, USSR. English translation by W. Prychodko and W. O. Pruitt, Jr. Published 1963 as Occasional Paper Number 1, Boreal Institute, University of Alberta, Edmonton; Alberta, Canada.
- Inman, R.M., A.J. Magoun, J. Persson, and J. Mattisson. 2012. The wolverine’s niche: linking reproductive chronology, caching, competition, and climate. Journal of Mammalogy 93(3):634–644.
- U.S. Fish and Wildlife Service. 2018. Species status assessment report for the North American wolverine (*Gulo gulo luscus*). Version 1.2. U.S. Fish and Wildlife Service, Mountain-Prairie Region, Lakewood, CO.

Step 12. Environmental Baseline

Describe the condition of wolverines and their resource needs in the action area, without the effects of the proposed action. Include the following:

- (a) Wolverine presence and use of the action area.
- (b) Wolverine conservation needs for survival and recovery specifically within the action area.

- (c) The general condition of wolverine habitat (refer to resource needs described in Step 11).
- (d) Any influences that might be contributing to the current environmental baseline of wolverine (including prior consulted on effects).
- (e) Wolverine ability to travel through or use the action area to access surrounding habitat (as defined in the following paragraphs).
- (f) Any other additional baseline information.

Describe the action area relative to occupied wolverine areas or areas with high-quality modeled habitat (see Table 1). Include context that describes distance to and presence of human disturbance as well as connectivity and dispersal needs. Wolverine home ranges are large and vary across the listed entity range (in Central Idaho, an average female home range is 148 mi² while an average male home range is 610 mi²; USFWS 2018, p. 22 Table 1). Such large home ranges often mean that action areas may only include a portion of an individual's home range. Discussion about connectivity and dispersal needs in the action area may require considerations of habitat conditions outside the action area in the effects of the action section; for example, it may be helpful to describe if the conditions of the current environment may be deterring wolverine movement between high-quality habitat patches due to human development (e.g. a housing development). Resident wolverines behave differently than dispersing individuals because dispersing wolverines more readily move through lower quality habitat (Carroll et al. 2020, p. 9). However, dispersing wolverines still display some level of habitat selection (i.e., the poorer quality the habitat becomes, the more wolverines will avoid it while dispersing). Work with your local Service field office to discuss ecosystem-specific habitat considerations.

Describe habitat in the action area that may be available to wolverine, ongoing positive or negative impacts, and any influences on movement and dispersal. Habitat condition descriptions should include considerations of resource conditions and human presence and development within a possible individual's home range. For example, an active ski area may deter wolverines from denning within that area, despite being modeled as habitat. Access to large intact blocks of habitat that include sufficient resource needs is important considerations in wolverine consultations; access to large intact blocks may include maintaining access to areas outside the action area and within an individual wolverine home range. Include known denning and rendezvous information, vegetation types, percent cover and/or forage, habitat quality (if known), distance from human disturbances, habitat patch sizes, and distribution (see **Appendix B: Wolverine Glossary of Terms** for definitions [*in review*]). If there are major discrepancies between habitat models in the action area, compare the models and justify which model you are choosing (see Table 1). Include quantity of chosen modeled habitat in the action area. Include any other habitat description considerations that may be relevant as this is not an exhaustive list. If appropriate, upload surveys or assessments related to this information – if this feature is not yet available in this section in CPB, attach these as Appendices with the draft consultation package when emailing to the local Service Office (see Step 19).

Consider and discuss the spatial arrangement of motorized and unmotorized routes, the use intensity and frequency on these routes, and how this context relates to wolverine density, denning, dispersal, and movement (i.e., where wolverine use and movements could occur in the action area in relation to the current routes). Describe the condition of human access in the area including dispersed recreation and intensity of use.

Make sure to consider:

- (1) The condition of denning and rendezvous areas including:
 - a. location and history if known.
 - b. available denning habitat (including connectivity between habitat patches).
- (2) The frequency and intensity of human disturbances within wolverine habitat.
- (3) The condition of dispersal and connectivity corridors between habitat patches.
- (4) The condition of vegetation for (a) caching and (b) hiding cover/denning.
- (5) The condition of prey availability and access to carrion.
- (6) The condition of temperature for preserving food caches.
- (7) Poaching or incidental fatality history

Include any other information you think may be relevant.

Table 1: Summary of published wolverine habitat models – for reference only. This does not need to be uploaded to your CPB package or sent in as an attachment with your consultation package.

Model	Summary	Covariates Included
Copeland et al. 2010	This study tested the hypothesis that the distribution of wolverines is constrained by their obligate association with persistent spring snow cover for reproductive success. The authors compared 562 wolverine dens globally with their association with late spring snow. ^a	Late spring snow (24 April – 15 May) collected 2000-2006 (i.e., the number of years the pixel contained late spring snow out of 7 years total, ranging from 0-7 years).
Inman et al. 2013	<p>This study created a first order resource selection function to predict habitat suitable for survival, reproduction, and dispersal of wolverines to develop conservation priorities at the metapopulation scale. They collected data from 38 collared wolverines in the Greater Yellowstone Ecosystem (2001-2010). They then extrapolated their findings to the contiguous U.S. Wolverines were distributed in areas of high elevation, steep terrain, high snow depth, few roads, less human activity, close to high elevation talus, tree cover, and areas with spring snow.</p> <p>Based on the models scores, the model was subdivided into maternal (>0.968), primary (0.967), and dispersal (0.966 females, 0.9333 males)</p>	<ul style="list-style-type: none"> - Latitude adjusted elevation. - Terrain Ruggedness. - Snow depth (From April 1, 2004 & 2005). - Road density. - Human density. - Distance to high elevation talus. - Distance to tree cover. - Distance Snow >2.5 cm.
Carroll et al. 2020	This study created a second-order resource selection function to determine	<ul style="list-style-type: none"> - Human land use. - Modified adjusted elevation.

<p>the habitat requirements of dispersing wolverines. This study used the same data from the Inman et al. (2013) collared wolverines and extrapolated their findings to the contiguous US. Areas of highest-quality wolverine habitat (scoring >0.95) were defined as “cores.”</p>	<ul style="list-style-type: none"> - Landforms. - Snow water equivalent. - Landcover.
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^aA post hoc review determined most wolverine dens were located in snow class 3-7 (Copeland 2024, entire).

Literature Cited:

Copeland, J. 2024. A personal communication describing the proper use of the wolverine habitat model when modeling denning and year-round habitat using persistent spring snow cover data from Copeland et al. 2010.

Step 13. Analyze Indirect Interactions

Indirect interactions consider action-related impacts to resource needs of a species that indirectly affect individuals of a species.³ This section should clearly lead the reader through the impact → exposure → response → effect pathway. Identify which wolverine resource needs are present in the action area and explain your rationale if you determine a resource is not present. Make sure that you consider the subcategories within each resource need (e.g., resource need: vegetation and with subcategories: forage and cover). Use the SSA and any monitoring or habitat reports to assist with this section. The table in CPB will look like Table 2 below, and it would be helpful to replicate this table in a standard BA/BE.

Table 2. Example resource need interactions table provided in CPB with potential wolverine chain of effects.

RESOURCE NEED	STRESSORS*	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS IMPACTED (exposed to stressor)
e.g., Cover- dens	Decrease in large fallen trees, or root wads	Large diameter trees downed trees or root wads will be left on site.	50 acres	Estimated individuals or surrogate habitat exposed to reduced available den sites

*Stressors in this section deal with indirect impacts to resource needs. Direct impacts to wolverine individuals will be addressed later.

Describe the distribution, location, quantity, and quality of each wolverine resource need that is present. What sex and age are the wolverines that are likely to use the action area? Are habitat patches sufficient to support more than transient use? Calculate or estimate how many wolverines may be

³ The reference in CPB to direct and indirect interactions (effects to individuals) is not the same as direct and indirect impacts to the environment referred to in the action area definition. In CPB, the analysis is focused on direct interactions with individuals and indirect interactions with individuals via habitat impacts.

exposed to the stressor on the resource based on local data. If you cannot estimate the number, describe the density of wolverines relative to other areas or any other information you can provide. Consider where the action area is relative to wolverine population concentrations.

Include any conservation measures that will be implemented for this project to avoid or minimize impacts to the wolverine resource need and the size, scope, magnitude, and location of remaining impacts. Appendix A in this User Guide, *Example Wolverine Conservation Measures [In review]*, includes a comprehensive but not exhaustive list of general and activity/structure-specific wolverine conservation measures that have been included in previous consultations and may be relevant and implementable for the proposed action. Discuss effects from the proposed action's activities and structures to the wolverine resource needs identified above.

Consider different contexts of effects to wolverine resource needs. Wolverines have three life stages: dependent young, subadults, and adults (see Figure 2). Wolverines develop quickly, reaching maturity in about 8 months, and are generally full grown by October or November.

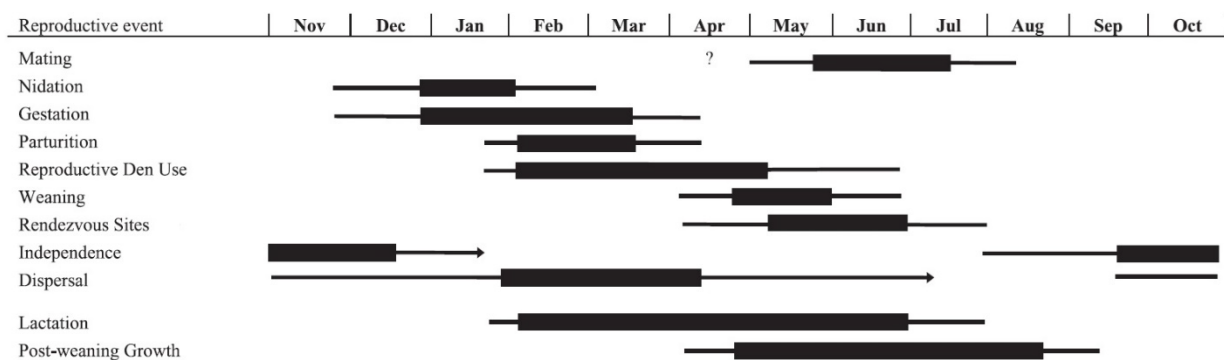


Figure 2. Range (thin line) and peak (thick line) time period of wolverine reproductive events (modified from Inman et al. 2012, Figure 2, p. 637). This figure is provided for reference only and does not need to be uploaded to your CPB package or sent in as an attachment with your consultation package.

Using denning cover as an example, a proposed action that decreases the number of fallen trees or root wads may reduce the amount of potential denning sites available for wolverines. This may cause pregnant females or females with kits to exert more energy to find a suitable den site or shift dens more frequently. However, if there are many other available den sites in the vicinity, effects may be insignificant. To determine the level of effect, describe any nearby cover and how wolverines can access it or any other relevant considerations. Think about which of the proposed action's activities or structures may affect cover and the scope and extent of effects to cover. Make sure to include any phasing, buffers, adjacent suitable cover, or other design features or conservation measures that will be implemented for this project and could minimize effects to cover, such as leaving a percentage of large diameter trees or root wads on site.

Step 14. Analyze Direct Interactions

Identify the direct interactions with wolverine individuals that may occur (e.g., deters movement, disturbance, displacement, collisions, etc.). As with Step 13, it is important here to clearly describe the impact → exposure → response → effect pathway. Analyze each direct impact by describing any conservation measures the action agency will include (see Appendix A for a list of example conservation

measures [*In review*]). After describing the conservation measures, determine how many individuals (or surrogate amount) could be exposed to that direct impact. The table in CPB will look like Table 3 below. It would be helpful to replicate this table in a standard BA/BE if not using the CPB tool.

Table 3. Example wolverine direct interactions table provided in CPB.

DIRECT IMPACT	CONSERVATION MEASURES	INDIVIDUALS IMPACTED (exposed to stressor)	IMPACT EXPLANATION
e.g., Disturbance	Phased activity providing areas away from human disturbance in adjacent habitat	Estimated individuals exposed to disturbance or surrogate, XXXX acres of maternal habitat total, XXXX acres in phase 1, and XXXX acres in phase 2, etc. XXXX acres of primary habitat total (XXXX acres in phase 1, XXXX acres in phase 2, etc.). XXXX acres of dispersal habitat total (XXXX acres in phase 1, XXXX acres in phase 2, etc.)	Disturbance can cause wolverines to startle and/or flee an otherwise preferred habitat area. Long-term displacement (under-use or avoidance) from preferred habitat could lead to movement and dispersal barriers for all life stages, resulting in decreased access to food, shelter, and denning areas that may impact reproductive and survival success.

Consider direct interactions that could result in vehicle collisions, startle and stress responses, auditory or visual disturbance, deterring habitat use, or changing movement patterns (including den-shifting). Any of these could lead to reduced wolverine fitness, reproduction, or survival, depending on the timing relative to wolverine life history (see Figure 1), frequency, intensity, and duration of the interactions. Displacement is used in general terms to describe “under-use” of preferred habitat. Displacement also may describe “avoidance” of an area, but it does not necessarily mean that wolverines will completely avoid an area, or be permanently excluded from using an area. Consider effects of displacement to female wolverines versus male wolverines. For example, if analyzing female wolverines, increased stress could lead to reduced fitness, which could reduce kit survival or reproductive success. Discussion on displacement or den-shifting should include sizes and spatial arrangements of effective habitat patches (i.e., areas where wolverines can be free of direct impacts from noise and human access and have access to sufficient resource needs). Make sure to include the following: seasonality of disturbances, frequency and duration of disturbances, any breaks in activity, timing, and any buffers.

Step 15. Cumulative Effects

Identify and provide information on any anticipated future state or private activities (not involving Federal activities/funding) that are reasonably certain to occur within the action area. Use the same process of describing impact-exposure-response-effect as you did in the effects of the action section for the proposed action (i.e., Steps 9 to 14). Describe effective habitat conditions on non-Federal lands within the action area with best available science and information, including how non-Federal actions on those lands might affect wolverine habitat use patterns or movement within and through the action area. When writing the description, include any available information about attractants management and regulations on non-Federal lands in the action area. In the cumulative effects section, it is important

to include as well as explain any future reasonably certain to occur activities (e.g., future road plans or development on non-Federal lands).

Phase 4. Conclusion

In Phase 4, the action agency wraps up the analysis by making the effect determination, discussing how conservation measures will be implemented, and concluding the analysis.

Step 16. Effect Determination

Review the remaining indirect and direct interactions from the stressors associated with the proposed action's activities and structures to wolverine resource needs and individuals (or surrogate) and make your effect determination (see [Idaho CPB User Guide](#) for more information on effect determinations). In CPB, there is also the option to describe any section 7(a)(1) or other measures that avoid, minimize, or offset the consequences of the action, if you would like to highlight efforts the action agency is implementing for the recovery of the species.

Step 17 & 18. Conservation Measures Implementation

Under Step 17 of the [Idaho CPB User Guide](#) the action agency conducts a Phase 3 analysis (Steps 11 through 16) for other listed entities. Step 18 asks the action agency to describe how they will implement any conservation measures, including design elements and design features identified for wolverines. For example, phasing measures will minimize disturbance of wolverines. Describe how the action agency will implement included conservation measures.

Step 19. Conclude analysis

Summarize the overall effects the proposed action will have on wolverines and their habitat within the action area. Provide clear statements summarizing the analysis that will help the Service understand its findings. If using CPB, download the document from CPB. Submit the draft BA/BE to the Service by email: fw1idahoconsultationrequests@fws.gov. Please note that Service biologists can be added to CPB at any step in the process to assist with development of the draft BA/BE, if desired. We recommend discussing workload capacity with the local Service office prior to adding anyone to a proposed action in CPB. Similar to a regular consultation process, the biologist reviewing the draft BA/BE may have follow-up questions or requests of additional information for the submitted draft BA/BE. Adding the Service to the document in CPB is intended to help reduce additional information requests.

Appendix A: Example Wolverine Conservation Measures

[In review]

Appendix B: Wolverine Glossary of Terms

North American Wolverine terms for reference – does not need to be included in CPB or sent in as an attachment with your consultation package. *[In review]*

Appendix C: Wolverine Den Site Features Example Photos

Photographic examples of the different types of den sites in Idaho, discussed above.



Figure C1. Avalanche debris on the Boise National Forest.

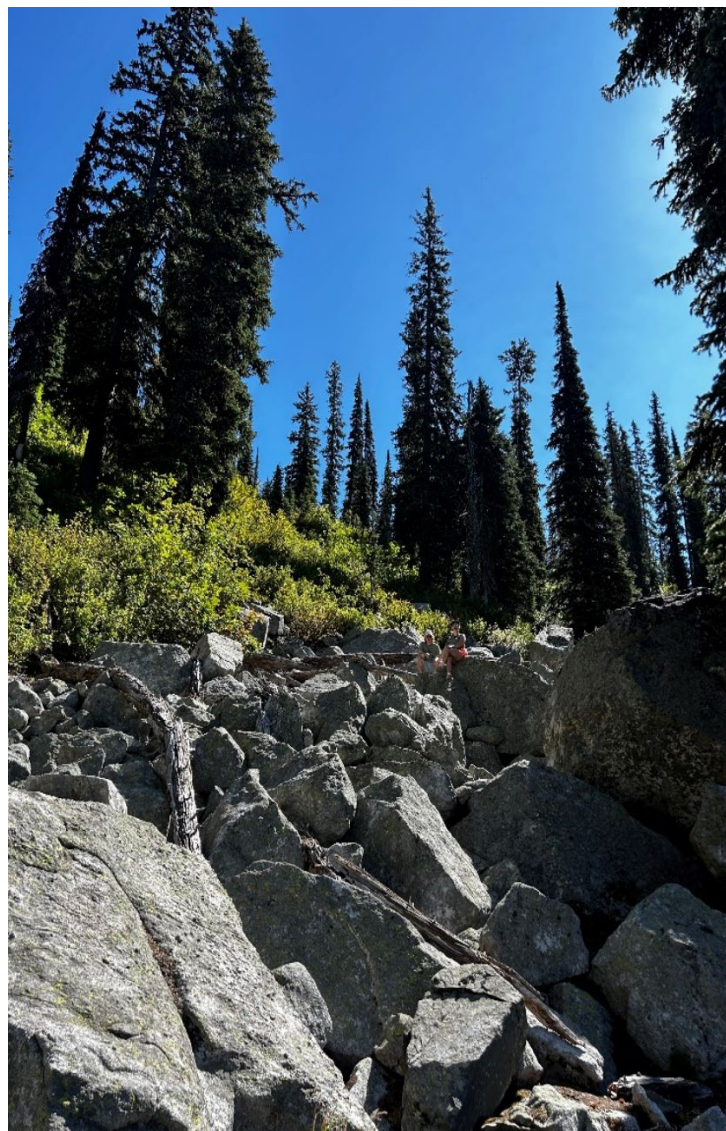


Figure C3. Talus slope with large boulders on the Idaho Panhandle National Forest.



Figure C4. Glacial cirque with lake on the Idaho Panhandle National Forest



Figure C4. Fallen tree root wad on the Sawtooth National Forest