Prioritizing the Acquisition of Wilderness Inholdings
This prioritization system was developed, tested, and edited by Mark Pearson with assistance from Dr. George N. Wallace, Department of Natural Resource Recreation and Tourism, Colorado State University.

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At the end of 1990, there existed 454,000 acres of nonfederal lands among the Forest Service's 33.6 million acres of designated wilderness. Similarly, the Bureau of Land Management's 1.6 million acres of wilderness contained upwards of 25,000 acres of nonfederal inholdings. These nonfederal lands include patented mining claims, state school sections, and homesteaded lands.

The pattern and number of wilderness inholdings, as shown by this example of the Holy Cross Wilderness in Colorado, fragments federal ownership and poses severe challenges for wilderness managers.

Prioritizing the Acquisition of Wilderness Inholdings

Wilderness inholdings can pose a substantial impediment to long-term preservation of wilderness character if they are used in a fashion that compromises the integrity of wilderness values or resources. Various actions or development incompatible with wilderness have been proposed or have occurred on wilderness inholdings. These include the construction of residential structures, extraction of mineral resources, airstrips or roads permitting motorized access, and inappropriate commercial recreation activities.

In many cases, federal land management agencies can prevent degradation of wilderness resources through timely acquisition of inholdings from willing sellers, while at the same time respecting the situation of inholders whose rights may have preceded wilderness designation. Experience has shown that the vast majority of inholdings are available for purchase at reasonable market prices. The question for managers then becomes where to focus limited human and financial resources. The method for prioritizing acquisition of wilderness inholdings described in this document is intended to assist managers in allocating available resources in a fashion that best protects the wilderness resource.
The Prioritization Method

This method for prioritizing the acquisition of wilderness inholdings was developed by researchers at Colorado State University in response to a request from a private non-profit land trust assisting federal agencies in acquisition of wilderness inholdings. Other prioritization methods are currently in use by federal agencies, most prominently the Office of Management and Budget's (OMB) ranking system for Land and Water Conservation Fund (L&WCF) monies. Upon consideration of these existing systems, it was determined that none addressed the real needs of the wilderness resource. The L&WCF system, for example, gave priority to land parcels experiencing rapid expansions in visitor use or which contained existing infrastructure to facilitate visitor use. Neither of these considerations are of overriding importance to managers charged with preserving wilderness values.

The method devised specifically for wilderness inholdings consists of three major components:

i) an assessment of the parcel's development potential;

ii) an evaluation of its ecological importance; and

iii) an assessment of the social impacts of development on visitors and managers.

Within each component, five or six factors are rated and a numerical score assigned based on a system of low-medium-high corresponding to 1-2-3. Scores are summed and a prioritized ranking developed from these scores. All inholdings are examined prior to determining the owners willingness to sell.

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<thead>
<tr>
<th>Rank</th>
<th>Tract No. (MS No.)</th>
<th>Description (claim name)</th>
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<th>Ecolog. Score</th>
<th>Societal Score</th>
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<td>Martin White Stranger</td>
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<td>36/35</td>
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</table>

An example ranking from the Holy Cross Wilderness, Colorado.
Components of the Method

Development potential is evaluated primarily from an economic or real estate point of view. Ecological significance considers the impacts of habitat fragmentation and the presence of sensitive or ecologically significant resources. The social impact component gauges the impacts to human-centered or societal values like the wilderness visitor experience, aesthetics, or how the parcel affects management. The rating factors relevant to each component are described below and guidance provided as to rating individual inholding parcels*.

Christiania patented lode claim along shores of Cleveland Lake in Forest Service’s Holy Cross Wilderness, Colorado. This is an example of a highly ranked inholding because of its attractive and suitable development location near the wilderness boundary, accessed by an old jeep road in an area popular with wilderness visitors.

A. Development Potential

The factors evaluated to assess development potential consist of:

1) Threat of development
2) Access
3) Physical suitability
4) Distance from utilities
5) Existing improvements
6) Type of ownership

* An inholding parcel includes any privately held ownership interest in the land. This can include fee simple ownership as well as ownership fractions such as mineral rights, timber rights, water rights, and rights-of-way or easements.
1. **Threat of development** A threat is evidenced by a statement of interest in development by the owner or by the recent sale of the property since new owners are generally more interested in development than longtime owners.

   **High score**
   Owner has requested development permits or motorized access from county or federal agency.

   **Medium score**
   Property sold within last two years or owner known to have interest in selling.

   **Low score**
   Stable ownership or no known interest in development.

2. **Access** The most important characteristic influencing property value is access. Existing or historic vehicular access increases the likelihood of development and lessens agency oversight and control of development.

   **High score**
   Existing vehicular access on four-wheel-drive or better route; dormant right-of-way; or mechanized uses allowable under site specific wilderness management policies.

   **Medium score**
   Unspecified but historic access via wagon road physically capable of improvement to four-wheel-drive or better.

   **Low score**
   No existing or historic vehicular access.

3. **Physical suitability** What is the capability of a parcel to support likely intended uses. If residential development poses greatest threat, does parcel’s slope, aspect, soil or geology, and physical attractiveness suggest that potential for development is higher. Do valuable mineral deposits or water rights exist?

   **High score**
   At least portion of inhaling has slope less than 30 percent, hospitable soils or surface geology, aspect snow-free early in season, and an attractive location such as near a lake or with scenic views. Known deposits of valuable minerals, adjudicated water rights, or other economically-valued resources such as timber or whitewater recreation.

   **Medium score**
   At least a portion of inhaling has slope less than 30 percent but with less attractive location. Moderate potential for other resource development such as minerals or water.

   **Low score**
   Entirely unsuited for residential development because of slope greater than 30 percent, inhospitable soils or surface geology, located in avalanche zone, or other unsuitable location. Can also include lack of mineral, water, or other resources.

4. **Distance from utilities** Development is more expensive the greater the distance from utilities such as maintained public roads, electricity, or water lines.

   **High score**
   Located less than 1 mile from maintained local, state, or federal road or utilities.

   **Medium score**
   Located from 1-3 miles of maintained local, state, or federal road or utilities.

   **Low Score**
   Located more than 3 miles from maintained local, state, or federal road or utilities.

5. **Existing improvements** Existence of improvements indicates past interest in developing inhaling resources and increased property value. Improvements might consist of residences, wells, water diversion structures, existing mine workings, or livestock facilities.
High score
Existing improvements such as usable buildings, livestock facilities, developed wells, springs or other water resource structures, producing mine workings, or other features that add value to the property.

Medium score
Evidence of past improvements such as unusable cabins or abandoned mines but which retain the pattern and site development features (old foundations, wells, leveled areas).

Low score
No improvements that add value to the property.

6. Type of ownership Case studies have shown private owners more likely than local governments to be interested in residential, mining, water, and other types of development and less amenable to cooperative agreements.

High score
Private ownership.

Medium score
State or local government ownership.

Low score
Not applicable.

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**Development in the Wrong Places**

In 1992, a private landowner broke ground and began construction of a 3,500-square-foot luxury cabin high amidst the wild core of the West Elk Wilderness in Colorado. Lacking vehicular access, the landowner required no permission to transport materials to the building site via helicopter. The 160-acre inholding was a remnant of early 20th-century laws intended to promote development of coal bearing lands, and its disposal from federal ownership predated the establishment of Gunnison National Forest. Though the parcel was available for purchase, the Forest Service was unable to prioritize its efforts and a private speculator acquired it for residential development in 1989. Purchased in 1989 for $240,000, the 1993 appraisal indicated a value of $640,000. The Forest Service has offered the owner an exchange for lands near the Telluride ski resort. At best, the agency’s inability to acquire this property when first available will cost the taxpayer over $400,000. At worst, the pristine core of the 192,000-acre wilderness will be permanently diminished. In the nearby Maroon Bells-Snowmass Wilderness, development of a different sort was initiated in 1985. There, the owner of mineral rights to 472-acres of land three miles up Conundrum Creek applied for permits to begin quarrying 70,000 tons of marble annually. A county-owned public right-of-way along a relict wagon road provides access to the site. Forest Service managers believe they have no legal authority to regulate access to the site because of the public road, but still have some rights to condition use of the surface. The miner requires state and county permits in addition to any potential federal permits, but quarrying of sample material has occurred.
B. Ecological Importance

Factors used to evaluate ecological values combine the current ecological integrity of the area around the inholding and the degree of threats posed by development of it:

1) Level of human disturbance
2) Ecological nodes of diversity
3) Density of inholdings
4) Surrounding land use matrix
5) Nonconforming uses

1. **Level of human disturbance**  Human developments that have already impacted ecosystem processes through water pollution, introduction of exotic species, or other ways diminish the ecological value of the parcel. Parcels which are pristine and unsullied by human activity receive the highest score.

   - **High score**
     No developments like mine waste dumps or water pollution sources that substantially degrade ecological function of the parcel.

   - **Medium score**
     Abandoned developments that have been largely reclaimed by nature but may require some mitigation.

   - **Low score**
     Existing developments that require ecological restoration.

2. **Ecological nodes of diversity**  Nodes are defined as areas in the landscape with unusually high conservation value. Nodes of diversity can include endemic species, productive or threatened habitats like wetlands or old-growth forests, colonies of uncommon species, a single biotic feature like a “champion” tree, and physical habitats such as cliffs, caves, and springs.

   - **High score**
     Conjunction of three or more nodes of diversity on or near the parcel.

   - **Medium score**
     One or two nodes of diversity.

   - **Low score**
     No nodes of diversity.

3. **Density of Inholdings**  Clusters of development pose a larger radius of impact than isolated development. This factor assesses density and dispersion of inholdings.

   - **High score**
     Parcel is located adjacent to two or more other inholdings.

   - **Medium score**
     Parcel is adjacent to one other parcel, or is isolated from nearest neighboring inholding by less than one mile.

   - **Low score**
     Parcel is isolated from nearest neighboring inholding by more than one mile, or by a topographic barrier such as a high ridge.

4. **Surrounding land use matrix**  Parcels located deep inside wilderness require longer access corridors which increases the amount of corridor edge and the area potentially affected by invasion of exotic species. Parcels at the reserve core fragment wilderness more than do parcels near the edge.

   - **High score**
     Parcel is entirely surrounded by wilderness and is located more than two miles from the wilderness boundary, or is topographically isolated from the wilderness boundary by a feature like a ridge.

   - **Medium score**
     Parcel is surrounded by wilderness and is less than two miles from the wilderness boundary.

   - **Low score**
     Parcel is not entirely surrounded by wilderness.
5. **Nonconforming uses** These are uses that conflict with the spirit of wilderness though they may be legally authorized. Acquisition may allow for the elimination or reduction of an activity such as mining and accompanying ecological impacts like introduced exotic species.

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<thead>
<tr>
<th>High score</th>
<th>Medium score</th>
<th>Low score</th>
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<tr>
<td>Acquisition can eventually eliminate nonconforming uses that disrupt ecological processes.</td>
<td>Acquisition reduces level of existing nonconforming uses or eliminates activities with minimal ecological disruption.</td>
<td>Acquisition will not affect existing nonconforming uses, or none are occurring.</td>
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</table>

### Living with Non-Conforming Users

Wilderness managers walk a fine line between protecting wilderness values and respecting the rights of nonconforming users. Passing the 1964 Wilderness Act required some trade-offs with grazers, miners, water managers, pilots and others using wilderness areas prior to their designation. These uses do not conform to the spirit of the Wilderness Act but are legal compromises. Nonconforming users frequently feel that agencies may try and eliminate them in subtle ways. A system which clearly prioritizes the importance of inholding acquisitions combined with a policy of purchase from willing sellers can help eliminate these fears.

The sound management of nonconforming uses is one of the greatest challenges for wilderness managers. Respect between nonconforming users and wilderness managers will do a good deal to offset criticism from those opposing wilderness. Many of these uses can be managed to minimize their impact on wilderness values. Some grazing permits, for example, may be integral to the economic viability of adjacent ranches that provide a buffer to wilderness areas from more intensive development. Such factors should be kept in mind when using the prioritization system.

### C. Social Impacts

Social impacts from potential development are those things that affect either the wilderness visitor experience or the ability to manage and are evaluated using these factors:

1. Naturalness and solitude
2. Visitor use levels and attractions
3. High value resources
4. Mitigation difficulty
5. Enhancement of wilderness attributes
6. Improvement of wilderness manageability

1. **Naturalness and solitude** Apparent naturalness and opportunities for solitude are at the heart of the wilderness definition. Natural scenery and freedom from human-caused sights and sounds are assessed using wilderness opportunity settings and potential visual impacts.
High score
Located in pristine or primitive wilderness recreation opportunity setting as specified by the wilderness management plan, or where development would be visible or audible from more than 2,000 acres of surrounding wilderness lands (2,000 acres corresponds to a circle of one mile radius).

Medium score
Located in a semi-primitive wilderness recreation opportunity setting, or medium visibility/audibility from visitor use areas.

Low score
Located in a transition wilderness recreation opportunity setting, or low visibility/audibility from visitor use areas.

2. Visitor use levels and attractions  Wilderness visitor experiences can be greatly impacted by non-wilderness activities and development that disrupt highly-desired recreational outcomes.

High score
Parcel located in area receiving heavy recreational use, or in area with unique visitor attractions such as hot springs, 14,000-foot peaks, or alpine lakes.

Medium score
Parcel located in area receiving moderate recreational use.

Low score
Parcel located in area lightly used or with little possibility for impacting wilderness visitors.

3. High value resources  Wilderness designation is often used as a means to preserve resources highly valued by humans such as big game hunting areas, undisturbed cultural sites, unique geological formations, or municipal watersheds.

High score
Presence of critical big game habitat, cultural sites, municipal watershed, or other highly-valued resource.

Medium score
Marginal presence of highly-valued resources.

Low score
No known highly-valued resources.

4. Mitigation difficulty  How easy can aesthetic impacts from potential development be mitigated? Development activities that would scar desert or alpine lands incapable of reclamation would rate higher than development in rapidly regenerating forest.

High score
Existing or planned development lies in fragile landscape such as tundra or desert with little vegetative screening and little chance for successful reclamation.

Medium score
Existing or planned development lies in areas with moderate vegetative screening or with moderate reclamation potential.

Low score
Existing or planned development lies in areas well-screened and with high reclamation potential.

5. Enhancement of wilderness attributes  Acquisition of some inholdings enhances wilderness character for wilderness visitors. Examples include acquisition of abandoned mine adits that pose safety or pollution hazards and securing public access across intervening lands.

High score
Acquisition allows for elimination of pollution source or safety hazard, secures public access, or otherwise enhances visitor experience.

Medium score
Acquisition has potential to enhance visitor experience.

Low score
Acquisition has no effect on visitor experience.
6. **Improvement of wilderness manageability** Some inholdings generate substantial public controversy and have a long history of legal battles and user conflicts. Acquisition can eliminate these conflicts, or otherwise remove nonconforming uses that unduly burden managers and other users. Acquisition also may make ecosystem or multi-jurisdictional management easier.

**High score**
Acquisition eliminates or reduces potential conflicts with wilderness management and adjacent jurisdictions as evidenced by past user or agency conflicts, lawsuits and other indicators of cooperation and manageability.

**Medium score**
Acquisition increases likelihood of improving manageability relating to one of the above issues.

**Low score**
Acquisition has no effect on manageability issues.

Water development within BLM’s Cebolla Wilderness, New Mexico. This inholding near the wilderness boundary receives a medium ranking because lack of ecological and societal values counters high development potential rating (note existing improvements and vehicular access).

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**Other considerations in acquiring lands**

The prioritization method should give managers a resource-based assessment of the relative importance of wilderness inholdings. Some practical considerations come into play once acquisition is actually pursued for any individual parcel. For example, a hazardous waste review must be completed prior to federal acquisition. If a site contains extensive evidence of hazardous waste contamination, the federal government may decline to accept title. Thus even if the parcel pops out at the top of the list, practical reasons may prevent its acquisition. Of course, extensive hazardous waste contamination may similarly dissuade private purchasers or developers of the property. The Wilderness Act prohibits condemnation of private lands within wilderness so acquisition can only proceed on a willing-seller basis. Resistance by a landowner may override the prioritization, in which case managers should simply move to the next parcel down the list. Another possible obstruction might be lack of clear title to the property. Once agency managers pursue acquisition of a ranked parcel, the title might be so severely clouded as to preclude acquisition. Again, managers should then move on to the next parcel on the priority list.
Example of rating a parcel

Situation: An inholding is situated on level ground near a lake containing a threatened subspecies of reproducing cutthroat trout. An old wagon road accesses the lake and a newly constructed cabin in a primitive recreation opportunity setting. The lake is located more than three miles from the wilderness boundary and its nearest neighboring inholding.

Development Rating
The parcel receives a "medium" score for access because of the historic wagon road; a "high" score for physical capability because of level ground and its attractive location near the lake; and a "high" score under improvements because of the cabin. The owner has requested vehicular access, so the threat factor is rated "high". Three miles from the boundary and a maintained road translates to a "medium" distance score, and private ownership results in a "high" score as well. Using a 1-2-3 point system, the development point score is 16.

Ecological Rating
The parcel receives a "medium" score under human disturbance because though there is an existing cabin, it does not affect the ecological diversity node present; a "medium" score under ecological nodes of diversity for the one diversity item (the reproducing cutthroat trout); and a "high" score under eliminating nonconforming uses because acquisition will allow permanent removal of a sometimes inhabited structure. The parcel receives a "low" score for inholding density because it is isolated from other inholdings and a "high" score for wilderness matrix because it is entirely surrounded by wilderness. The ecological point score for this parcel is 11.

Societal Rating
The parcel receives a "high" score for naturalness because of the primitive recreation opportunity setting; a "high" score for use levels or attractions because of the recreational attraction of the lake; and a "high" score for high value resources because of the cutthroat trout population. The parcel sits at treeline and has some vegetative screening so mitigation difficulty is rated as "medium." It also receives "high" scores for enhancing wilderness attributes by eliminating potential obstruction of public access along the trail which follows the wagon road and for improving wilderness manageability by eliminating the inhabited structure and vehicular access. The societal point score is 17.

The combined score for all three components for this parcel is 44.
### Tract Scoring Form

**Wilderness Area:**

<table>
<thead>
<tr>
<th>Tract #</th>
<th>Description</th>
<th>Development Potential</th>
<th>Ecological Importance</th>
<th>Social Impacts</th>
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# Summary Ranking Form

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