



ILLINOIS NATURAL AREAS INVENTORY

INAI Grading Form & Guidance

Site Name:		INAI #:		Date:		
Surveyor:		Acres:				
Natural Community Type:		Natural Community Grade:				
Description of Quality Indicators	Photo	Effect -,+,±,?	Extent -,L,M,H	Level -,L,M,H	Trend -,L,M,H	Note #



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Site Name:		INAI #:		Date:		
Surveyor:				Acres:		
Natural Community Type:					Natural Community Grade	
Ratings <ul style="list-style-type: none"> • Low (L) • Medium (M) • Moderately High (MH)* • High (H) • Very High (VH)* <small>*MH & VH for Composition Only</small>	Note #	Rating		Note #	Rating	
Composition						
Richness			Conservatives			Lack of Increasers
Lack of Ruderals			Lack of Exotics			
Structure						
Ground Layer			Shrub layer			Subcanopy
Overstory			Horiz. Pattern			
Processes						
Reproduction & Growth			Succession			Fire
Hydrology						
Environment						
Soil			Water			Lack of Intrusions
Discussion						
		Boundaries				Inclusions
Note #	Notes					



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INAI Terrestrial Grading Form Guidance

An Illinois Natural Areas Inventory (INAI) Grading Form is required for natural communities being nominated as a Category I - Grade A, B, or C Best of Kind. Vegetation sampling in a natural community aids in supporting the community designation and determining the quality.

- Qualitative Vegetation Sampling (i.e., Plant List) should accompany grading forms for natural communities being nominated as a significant feature.
- Quantitative Vegetation Sampling is only required for the highest quality natural community type within each community class for Category I terrestrial sites.

To begin, first identify the natural community boundaries to be graded. Next, conduct Qualitative and/or Quantitative Vegetation Sampling, if required, according to the INAI Standards and Guidelines, Appendix C.1. Finally, fill out the INAI Grading Form and assign the appropriate grade.

Page 1 Guidance

Site Name: Enter the suggested name by which the site will be designated if granted final approval.

INAI #: Enter existing INAI # if the site is already on the Inventory.

Date: Date on which the natural community was graded.

Surveyor(s): Enter the name(s) of the individuals completing the form.

Acres: Acres of the natural community being graded. This can be entered after the area of the natural community has been calculated with GIS.

Natural Community: INAI community type that is being evaluated.

Natural Community Grade: Record A, B, C, D, or E. This is done after the form is completed. Do not use plus or minus signs (e.g., B+ and C-). See Grading Rules below.

Description of Quality Indicators:

- Provide a description of the Quality Indicator(s) that support(s) the Grade that is being assigned to the community.
- A Quality Indicator is a feature that (a) usually can be observed in the field, and (b) can be interpreted as an indication of some kind of disturbance or lack of disturbance to a natural community.
- See Appendix 4 of the Illinois Natural Areas Inventory Update: Grading Handbook 4th edition (White 2009b)(Grading Handbook) for more detail, including a list of Quality Indicators.

Photo: File name or photo identifier that supports and corresponds to the indicator description.

Effect: The Effect the indicated Quality Indicator is having on the natural community.

- Negative effect
- + Positive effect
 \pm Approximately neutral or variable effect- ? Uncertain or unknown effect



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Extent: The Extent of a Quality Indicator is an estimate of the proportion of a natural community that is occupied or affected by the indicator. Enter a code that best describes the Extent:

- Not seen: The indicator or its effect is not found in the natural community.
- L Low (Localized): The indicator is localized, and it occupies or affects less than about one-tenth of the natural community, often in several scattered spots.
- M Medium (Moderate): The indicator occupies or affects roughly one-tenth to one-half of the natural community.
- H High (Widespread): The indicator occupies or affects more than half of the natural community.

Level: The Level of a Quality Indicator is the degree of development of the indicator and its effects. Enter a rating that best describes this level:

- None or N/A: If a Quality Indicator is present in a natural community but it is having no apparent, active effect on the community, then the Level is None. Or if the Extent of the Quality Indicator is recorded as Not seen, then the Level must be N/A (not applicable).
- L Low: In the parts of a natural community that the Quality Indicator occupies or affects, it is poorly developed and has a minor effect on the community.
- M Medium: The level of development is judged to be between Low and High.
- H High: In the parts of a natural community that the Quality Indicator occupies or affects, it is well developed and has a major effect on the community.

Trend: The Trend describes whether the Extent or Level of a Quality Indicator appears to be increasing or decreasing. Enter a number that best describes the Trend:

- Unknown or N/A: If a trend cannot be determined, it is Unknown. If the Extent of a disturbance is recorded as Not seen or if the Level is None or N/A, then the Trend is N/A (not applicable).
- L Low (Decreasing): The Quality Indicator is judged to be declining, either by shrinking in area or dropping toward a lower level of development.
- M Medium (Stable): The indicator appears to be in a steady state, neither increasing nor decreasing overall — although it may be increasing or decreasing locally within the natural community.
- H High (Increasing): The indicator is judged to be increasing, either in its extent or its level of development, or both.

Note #: Number for associated note about the indicator. These notes are recorded on Pages 2 and 3.

Page 2 Guidance

When evaluating a natural community, the overall condition of each of the four Grading Components and their Sub-components is estimated with a Condition Rating. Sub-components are rated before their Components are rated. The rating is recorded in the right box provided for each. If a note is provided as justification for the rating, the identifier for the note is recorded in the left box and the note with its corresponding identifier is recorded in the notes section.

Low Lower quarter	Medium Middle half	High Upper quarter
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A Grading Component or Sub-component is rated High (H) if it is judged to have more than 75% of the characteristics that it would have if it were in a theoretical, pristine natural area (i.e., without any degradation). A component or sub-component is rated Low (L) if it is judged on the same basis to be in the bottom quarter. Any case in-between is Medium (M).

It may prove problematic to distinguish a potential Grade A from a potential Grade B if the Composition is rated simply as High. To address this issue, a modification of the “High” rating for Composition is:

MH = Moderately High (Potentially Grade B Community)

VH = Very High (Potentially Grade A Community)

See Table 4 in the Grading Handbook for examples of different ratings for each Grading Component.

Site Name, INAI #, Date, Surveyor, Acres, Natural Community Type, and Natural Community Grade should be copied from Page 1.

COMPOSITION: The composition of a natural community refers to the species that are present in the community, plus three attributes of each species: its nativity, abundance, and autecology.

Richness: The number of species in a given area. This number may be derived from vegetation plot sampling, or it may be simply estimated by looking at the natural community, ideally while making a plant species list. Richness does not take into account the abundance of the species or their distribution.

Conservatives: Native plant species that do not tolerate most disturbances, and that usually do not occur in degraded habitats.

Lack of Increasers: Native or non-native plant species that tend to increase in number or vigor when their habitat is lightly to moderately disturbed.

- This score is assigned in a negative fashion as a site with no or few increasers would be given a High (H) score. Increasers are species that usually increase following disturbance. Their presence is not necessarily an indication of negative effects on a natural community. Species such as fleabane (*Erigeron spicata*), white snakeroot (*Eupatorium rugosum*) or pokeweed (*Phytolacca americana*) will often increase following prescribed burning.

Lack of Ruderals: Native or non-native plant species that grow in highly disturbed areas, often becoming established on bare soil; often annuals that do not persist unless the site is repeatedly disturbed or unless the substrate is unnatural (e.g., a cindery railroad embankment). Lack of species that are first to colonize disturbed land.

- This score is assigned in a negative fashion as a site with no or few ruderals would be given a High (H) score.

Lack of Exotics: Lack of non-native species. This score is also assigned in a negative fashion as a site with no or few exotics would be given a High (H) score.

STRUCTURE: Structure has three aspects:



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- the physiognomy or physical form and appearance of the vegetation as a whole,
- the pattern of distribution of species or groups of species within a natural community, and
- the growth form and morphology of individual species and even single plants in a natural community.

Groundlayer: The groundlayer consists of the herbaceous species, trailing vines, and woody species less than 1m tall.

Shrub Layer: Shrubs, saplings, and small trees.

Subcanopy: Small trees that form a canopy directly beneath the overstory canopy.

Overstory: Trees that form the uppermost canopy in a natural community.

Horizontal Pattern: The horizontal distribution of individual species or groups of species in a natural community, including the size and shape of vegetation patches, the relationship between patches and environmental gradients and disturbances, and the character of boundaries between patches.

PROCESSES: Ecological processes consist of the biological and physical actions that shape and control an ecosystem and cause it to function.

Reproduction and Growth: Addition of new plants (genets) through sexual reproduction, and addition of new stems (ramets) via asexual reproduction; also, increase in the size of plants.

Succession: The process in which communities of plants and animals in a particular area are replaced over time by a series of different communities.

Fire: An evaluation of the influence fire has on the natural community and the factors indicating its presence or absence.

Hydrology: Actions of running or standing water on a natural community: scouring soil and vegetation, inundating, and drowning living things, moving nutrients, etc.

ENVIRONMENT: The physical environment is the abiotic component of an ecosystem, including the substrate or medium in which plants and animals live.

Soil: An evaluation of the soil properties within and around the community taking into account factors such as compaction, erosion, and composition.

Water: Similar to hydrology considering factors on a larger scale. Streams, diffuse surface runoff, standing surface water, soil water, and groundwater.

Lack of intrusions: This metric is scored in a negative fashion with natural communities with little or no intrusions scoring high and those with significant intrusions scoring low. Intrusions may include roads, old structures, right-of-way, fencing, trash piles.

DISCUSSION: Enter a note number in the box and write more notes to support the grade assignment if the documentation is not covered sufficiently in the notes for Quality Indicators, Grading Components, and Sub-components.



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BOUNDARIES: Enter a note number in the box and write notes on the factors involved in determining the boundaries of the natural community particularly if those factors are not readily apparent on the map included with the nomination. Transition from forest to cropland or presence of roads and major streams are obvious.

INCLUSIONS: Enter a note number and provide explanation/justification for a feature that is recognizably distinct from the natural community being evaluated, but not large enough to be evaluated on its own. Inclusions may be positive such as a seep less than 0.25 acre in size or negative in the case of a 0.5-acre old field within a 25-acre stand of timber.

Page 3 Guidance

Page 3 is specifically for note taking. Copious note taking is encouraged, especially when the chosen grade is on the border.

Site Name, INAI #, Date, Surveyor, Acres, Natural Community Type, and Natural Community Grade should be copied from Page 1.

Note Number/Note: Enter the appropriate note number from page 1 or 2 and comment related to it.

Grading Rules

Composition and Structure can be employed as the principal basis for determining the grade of a natural community. The following Grading Rules are prescribed:

- **Composition** is the primary component for determining a grade:
 - o If Composition is Low, the grade is D.
 - o If Composition is Medium, the grade is C.
 - o If Composition is High, the grade is either A or B, depending on a.) how much the natural community's composition has been altered from natural conditions, and b.) the natural community's Structure.
- **Structure** is the primary consideration for separating Grade A and Grade B, after the Composition has been considered:
 - o If Composition and Structure are both High, the grade may be either A or B.
 - o If Composition is High but the Structure is Medium or Low, the grade is B.
- If Composition or Structure is rated High, and Processes or Environment is rated Low:
 - o Reexamine the analysis and rating of Composition or Structure to determine whether that component should be rated Medium instead of High.
 - o If the rating of Composition or Structure remains High, consider whether the grade should be lowered from Grade A or B to Grade C.
- If the results of applying the above rules do not make sense, then do something else, document the departure from the rules on the Grading Form, and consult with the Natural Areas Program. The current draft rules may prove to be oversimplified or otherwise inadequate.