

CONDITION RANKING FORM (December 20, 2021)

Evaluators: Date: County: GPS Coordinates: Waypoint # Previous Releve # Previously Identified NPC Type/Subtype: Current Releve # NPC Type/Subtype: Extent of Evaluation (circle one): Releve / Polygon / Other Mechanical scraping, churning trails, and OHV trails can dama species. Log landings and other be ranked. Further discussion in the reference information to Dead Wood (Snags, Coarse W Refer to Table 1 for expected a woody debris will be greater to Table 1 for expected a species. The state of Evaluation (circle one): Releve / Polygon / Other

Determining the condition rank of a FDc23 site begins with completing the Species Checklist procedure on page 4. Use the resulting abundance codes for the Scoring Sheet on page 2. On the Scoring Sheet, evaluate each category to calculate how many points should be deducted from the standard 50. Explanations for some categories are below in the order they appear on the scoring sheet.

Degradation "Decreasers" and "Increasers"

These species, identified on the Species Checklist, tend to decrease or increase after human disturbance, especially soil surface alteration. Recently burned sites may retain many decreasers and have few increasers. The identification of Decreaser species was based on Coefficients of Conservatism (c.c. values) in Floristic Quality Assessment (FQA) tables from Minnesota and Wisconsin as well as the professional judgement of ecologists and foresters with extensive survey experience in FDc23 sites.

Deer Browsing

When deer are abundant, browse-sensitive species decline in abundance or disappear altogether, and jack pine seedlings rarely make it out of the browse zone (2 meters tall). Browse pressure is assessed by noting the proportion of browsed stems on the woody species present. Calculating a shrub-based browse index using the method described Table 3 on page 3 can aid in the proper determination of browse severity.

Expected Tree Species Composition & Structure

After determining the stand's growth stage, compare the stand to the expected attributes in Table 1 (for species composition) and Table 2 on page 3 (for canopy structure).

Soil Disturbance

Fire typically removes the organic duff layer but leaves the mineral soil surface intact. Light soil scarification from a few passes of tree skidding causes similar or even less disturbance. Points should be deducted for soil disturbance only when the mineral soil surface is impacted by

mechanical scraping, churning or compaction. Disturbances like rock raking, disc trenching, skid trails, and OHV trails can damage the roots of fire-adapted plant species and promote invasive species. Log landings and other permanent conversions are not considered part of the stand to be ranked. Further discussion of impacts to soil from natural and human disturbances is found in the reference information that begins on page 5.

Dead Wood (Snags, Coarse Woody Debris, Fine Woody Debris)

Refer to Table 1 for expected amount of dead wood, depending on growth stage. Expected woody debris will be greater than indicated in the event of significant windthrow or mortality from native insects or disease. Do not deduct points due to these natural disturbances.

Table 1. Expected Attributes for Tree Species Composition and Dead Wood by Growth Stage Expected attributes are based on conditions when fire is the predominant stand-replacing and stand-maintaining disturbance, i.e. natural origin stands.

(left blank)	Early (0-55 years)	Transition (55-75 yrs)	Mature & Old (>75 yrs)
Tree Canopy	Jack pine	Red pine may become	Older jack pine declines,
Composition	dominant (may be sparse at first). Scattered individuals of red pine, oaks, aspen, and birch.	co-dominant with jack pine. On moister sites, aspen may increase, but not above 10% cover. (If greater than 10%, community may be FDc24.) Other minor species may persist, but are not increasing.	but is replaced by regeneration in canopy gaps. Red pine, when present, may surpass jack pine. Aspen and other minor species may persist, but are not increasing.
Snags	Snags remain standing after stand-replacing disturbance, gradually falling as the stand ages.	Few snags early in transition, but increasing as initial cohort jack pine begins to senesce.	Moderate number of snags maintained as older jack pines continue to die.
Woody Debris (CWD and FWD)	Little CWD in the youngest stands, but increasing as legacy snags fall. Fine woody debris absent at first, then increasing from self-thinning.	Some well-decayed logs from legacy snags. Ground fires keep small, self- thinned logs from accumulating.	There is a pulse of logs when initial cohort jack pines fall. Older stands maintain a moderate number of logs as jack pine snags continue to fall.

SCORING SHEET Assign the best value for each category and sum at the bottom

GROUND LAYER PLANTS (refer to species checklist on page 4)

Category	Value Explanation	Value
Degradation "Decreasers"	 0 = At least 4 species from this list are present AND at least 20 individuals of these species are present. -1= two to three species present AND ≥20 individuals. -2= >2 species present AND <20 individuals. -4= Fewer than 2 species present; only rare scattered individuals. 	Assign value here
Sod-forming Graminoids	 0 = Sod-forming grasses or sedges are rare, scattered, or occasional. Abundance Code is R or F. -2= These species are common, but not abundant. Abundance Code C. -3= These species are abundant or dominant. Abundance Code ≥A. 	Assign value here
Degradation "Increasers"	 0 = Species from this list are rare. Abundance Code is R. -1= These spp. are scattered or occasional. Abundance Code is F. -2= These species are common, but not abundant. Abundance Code C. -4= These species are abundant or dominant. Abundance Code ≥A. 	Assign value here
Prairie Specialists	 0 = At least 6 species from this list are present AND they have an Abundance Code of ≥F. -1= Three to five of these species are present AND Abundance Code is ≥F. -2= Three to five of these species are present AND Abundance Code is R. -4= No prairie species are present, or 1-2 species are present as single individuals. 	Assign value here
Mosses & Lichens	0 = Abundance code of mosses and lichens is ≥C, or, where tree canopy is absent, mosses and lichens may be very sporadic1= Tree canopy is present, and Abundance Code is ≤F.	Assign value here
Uncommon & Rare Species (<i>Bonus Point</i>)	+1 = At least one species from this list is present	here

TREES & TALL SHRUBS (refer to species checklist on page 4)

Category	Value Explanation	Value
	0 = Local ecotype jack pines <5m (16.4 ft) tall have an Abundance	Assign value here
Jack Pine	Code ≥F.	
Regeneration	-1= Jack pines <5m tall are ≥F, ecotype non-local or unknown.	
	-2= Jack pines <5m tall are rare or absent.	
	0 = Tall shrubs are rare, scattered, or occasional. Abundance Code	Assign value here
Tall Shrub Cover	is R or F.	
Tall Shrub Cover	-1= Tall shrubs common, but not abundant. Abundance Code is C.	
	-2= Tall shrubs are abundant to dominant. Abundance Code ≥A.	
Daar Brauna	0 = Browsing impact on woody stems is low (index < 0.2).	Assign value here
Deer Browse	-1= Impact on woody stems is moderate to high (index ≥ 0.2).	

TREES & TALL SHRUBS continued

Category	Value Explanation	Value
	0 = Composition matches growth stage description in Table 1.	Assign value here
Troe Species	-1= Composition approximates the relevant growth stage	
Tree Species Composition	description in Table 1, but with slightly more hardwoods or	
Composition	red pine than expected.	
	-2= Composition does not match description in Table 1.	
	0 = Refer to Table 2: Tree Cover and Structure on page 3 to	Assign value here
Tree Cover &	determine point deduction.	
Structure	-2= Refer to Tree Cover and Structure Table.	
	-4= Refer to Tree Cover and Structure Table.	

SOIL LAYER

Category	Value Explanation	Value
Organic Content	 0 = Conifer duff absent, or, if present, lying directly above sandy mineral soil with little organic content. -1= Upper layer of soil is becoming darker and loamier than below. 	Assign value here
Soil Disturbance (refer to page 1 for definition of disturbance)	 0 = Mineral soil surface appears to have had minimal to no human alteration. Disturbed soil covers <1% of area. -1= Past alteration of the mineral soil surface affected only localized areas (1-5% of area), e.g., skid trails or OHV trails. -2= Widespread past alteration of mineral soil surface, covering >5% of area, but now revegetated with mostly native species typical of FDc23. -4= Widespread past alteration of mineral soil surface, covering >5% of area, which has not revegetated with mostly native FDc23 species. 	Assign value here

DEAD WOOD

Category	Value Explanation	Value
Spage	0 = Snag abundance matches growth stage description in Table 1.	Assign value here
Snags	-1= Snag abundance does not match the description in Table 1.	
Woody	0 = Woody debris matches growth stage description in Table 1.	Assign value here
Debris	-1= Woody debris does not match the description in Table 1.	
Fire	0 = Evidence of past fire present, e.g., charred wood, soil charcoal.	Assign value here
riie	-1= Evidence of past fire absent.	

TOTAL SCORE (Deduct all assigned values from 50) = ____ Highest possible score = 51 (with bonus point); Lowest = 15

CONDITION RANK SCALE: A(≥48) AB(45-47) B(42-44) BC(36-41) C(31-35) CD(28-30) D(≤27)

This scoring sheet, including the rank scale, requires additional testing and refining. Feel free to assign a different rank, and provide an explanation. This information can help improve these ranking guidelines.

Table 2. Tree Cover and Structure: determining point deduction

Determine the appropriate Growth Stage and choose which of the three descriptions best applies to the stand. For stands that have experienced partial canopy removal by fire or logging (>25% cover remains), the age of the older trees (not the new regeneration) determines the growth stage.

(left blank)	Post Stand-Replacement	Early (20-40 years)	Early (40-55 years)	Transition & Mature & Old (>55 years)
	Disturbance (0-20 years)			
Expected Attributes, No Deduction	Jack pine is regenerating. It may be dense, or it can be sparse when the seed source is in adjacent stands. Some legacy jack or red pines persist from before the disturbance.	A tree canopy has formed, but tree density is variable and includes gaps approximately 10-20 meters across. In general, the distance to a canopy gap at least 10 meters across is no more than 20 meters from any point in the stand. Parts of the stand can be quite open and experience prolonged pine establishment. Some legacy jack or red pines persist from before the disturbance.	Multi-aged pines with declining canopy density, saplings recruiting into the canopy, and seedlings in expanding gaps. Even-aged conditions, if present earlier, are now fading.	Highly variable density of trees with various sized gaps. A variety of age cohorts with continual recruitment of young pines. In Transitional stands (55-75 years), the initial cohort of Jack pine continues to decline. In Mature and Old stands (>75 years) red pine, if present, moves into canopy and super canopy positions.
Two Points Deducted	Jack pine is regenerating, but legacy trees are absent or nearly so.	The tree canopy has gaps, but they are generally farther apart. Legacy trees are absent or nearly so.	The canopy has some gaps, but the trees are primarily even-aged with high density.	The canopy has some gaps, but the trees are primarily even-aged with high density.
Four Points Deducted	Jack pine either failed to regenerate or, if present, it is in jeopardy of being smothered by aspen or hazel.	Canopy gaps are absent or nearly so, and the only pines present are from the initial cohort.	High-density, even-aged trees with uniform, plantation-like structure.	High-density, even-aged trees with uniform, plantation-like structure.

Table 3. Calculating an index of deer browse

Mark **PU** if present and unbrowsed. Mark **B** if browsed.

SPECIES NAME	Circle 1	Circle 2	Circle 3	Circle 4	Circle 5
Species name:	PU/B	PU/B	PU/B	PU/B	PU/B
Species name:	PU/B	PU / B	PU / B	PU / B	PU / B
Species name:	PU/B	PU / B	PU / B	PU/B	PU / B
Species name:	PU/B	PU / B	PU / B	PU / B	PU / B
Species name:	PU/B	PU / B	PU / B	PU / B	PU / B
Species name:	PU/B	PU / B	PU / B	PU/B	PU/B
Species name:	PU/B	PU / B	PU / B	PU / B	PU / B
Species name:	PU/B	PU / B	PU / B	PU/B	PU/B
Species name:	PU/B	PU / B	PU / B	PU/B	PU/B

Count of all marks (PU + B): _____ = P Count of all B marks: ____ = B

Browse Index (B/P) =

For 5 circular plots with 1m radius, list all woody species present (P) in browse zone (0.2-1.8m high), and mark which show some browsing (B), including stems browsed in past years, but excluding hare or rabbit browse. Doing more than 5 circular plots (up to 30) would reduce sampling error, especially when shrubs are sparse. To avoid bias, place circles in a random or systematic fashion.

FDc23 Condition Ranking Transect - Species Checklist (scientific name version)

Instructions: Locate a homogeneous portion of the stand. Along a 4-chain transect, starting >50ft from the stand edge, search for all plants growing within a few steps of the transect. Spend an additional 15-30 minutes wandering the stand for additional species. For each species observed, place an "X" in the column to the left of its name. Species not included on this checklist should be recorded under Additional Species with overflow in the Notes section of the Condition Ranking form. Using the resulting species list, confirm that the stand is FDc23 (A high quality FDc24 will rank lower using guidelines for FDc23).

At the end of the transect, stop to summarize for the whole community/stand the Abundance/Cover (A/C¹) codes for each individual species. In addition, for the species groups with a space provided, summarize the Collective Abundance of all plants in each species group, using the Abundance codes at the bottom of this page¹.

, 10 G	ndance codes at the bottom o	i tilis pa
Х	Overstory Trees Collective	A/C¹
	Abundance:	
Χ	e.g. Red maple	C/2
_	Betula papyrifera	_
_	Pinus banksiana	_
_	Pinus resinosa	_
_	Populus grandidentata	_
_	Populus tremuloides	_
_	Quercus macrocarpa	_
_	Quercus rubra /	
	ellipsoidalis	
Х	Understory Trees (<5m	A/C¹
	(16.4 ft) tall)	
_	Pinus banksiana	_
_	Pinus resinosa	_
	Populus tremuloides	
Ε	_	Ι <u>-</u>
_ V	Tall Shrubs Collective	A /C1
Х	Abundance:	A/C¹
	Corylus americana &	
-	cornuta	-
	Rubus idaeus	
X	Mosses & Lichens	A/C¹
^	Collective Abundance:	~, ~
	_	
_	_	
Х	Degradation Decreasers	A/C¹
	Collective Abundance:	
	Arctostaphylos uva-ursi	_
	Bromus ciliatus	-
_	Chimaphila umbellata	
	Cypripedium acaule	-
	Epigaea repens	-
_	Goodyera tesselata	
	Lathyrus ochroleucus Linnaea borealis	-
_	Lysimachia borealis	_
_	Orthilia secunda	-
-	Polygala pauciflora	_
_	Prunus susquehanae	_
_	Pyrola spp.	-
_	Schizachne purpurascens	_
_	Sibbaldiopsis tridentata	_
_	-	_
<u> </u>		

X	Sod-forming Graminoids Collective Abundance:	A/C¹
	Carex pensylvanica	
_		_
_	Poa pratensis	_
X	Degradation Increasers	A/C¹
	Collective Abundance:	
_	Agrostis scabra	_
_	Ambrosia spp.	_
_	Carduus acanthoides	_
_	Centaurea spp.	_
_	Cerastium spp.	_
_	Chenopodium spp.	_
	Cirsium arvense & vulgare	
_	Conyza canadensis	_
	Erigeron spp.	_
_	Euphorbia spp.	
_	Fallopia spp.	_
_	Galeopsis tetrahit	_
_	Oenothera biennis	_
_	Panicum capillare	_
_	Phleum pratense	_
_	Plantago spp.	_
_	Poa compressa	_
	Poa pratensis	_
_	Potentilla recta &	_
	argentea & simplex	
_	Solanum spp.	_
_	Solidago altissima &	_
	canadensis	
	Sonchus spp.	_
	Tragopogon dubius	_
_	Trifolium spp.	_
_	Verbascum thapsus	_
	Xanthium strumarium	_
	_	_
	Incommon or Para	A /C1
Х	Uncommon or Rare Species	A/C¹
	Carex tonsa	_
_	Cirsium pumilum var. hillii	_
_	Cypripedium arietinum	
-	-	_
_	-	_

Х	Prairie Specialists	A/C¹
	Collective Abundance:	
_	Amorpha canescens	_
	Andropogon gerardii	_
	Anemone patens	
	Artemisia ludoviciana	
_	Asclepias ovalifolia	_
_	Bromus kalmii	
_	Carex richardsonii	
_	Dalea candida var. candida	_
_	Dalea purpurea	_
_	Hesperostipa spartea	_
_	Heuchera richardsonii	_
_	Koeleria macrantha	_
_	Liatris aspera	-
_	Lithospermum canescens	_
	Lithospermum	-
-	caroliniense	-
	Pedicularis canadensis	
_		
_	Packera plattensis	_
_	Phlox pilosa	_
_	Potentilla arguta	_
_	Schizachyrium scoparium	ļ <u> </u>
_	Solidago ptarmicoides	_
_	Solidago speciosa	_
_	Sorghastrum nutans	_
_	Symphyotrichum	_
	oolentangiense	
_	Zizia aptera	_
Х	Additional Species	A/C¹
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
	-	-
-		
-	-	_
- -	-	-

¹Cover (C) Codes: 1 = <5% cover, plants occurring as scattered individuals; 2 = 5-25% cover, plants in small patches or spreading individuals; 3 = 25-50% cover, plants in large patches/colonies or co-dominant trees; 4 = 50-75% cover, plants in extensive colonies/mats/interrupted canopy or co-dominant trees; 5 = >75% cover, plants forming continuous canopy/carpet or occurring as dominant trees.

Abundance (A) Codes: R = rare, nearly absent; F = few, scattered individuals, C = common; A = abundant, co-dominant; D = dominant.

E.g. enter "C/2" for a plant that is common in small patches that cover about 5-25% of the ground.

Reference Information