

PA VERNAL POOLS – CONSERVATION RANKING

Refer to the Vernal Pool Site and Pool Survey Forms for details.

SPECIES RANKING (<i>Species data is required to create a rank for animal assemblage purposes</i>).	A	B	C	D
Vernal Pool Indicators ¹	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Egg Mass Abundance ² : Mark whether an A or B ranked egg mass abundance was observed on site.	<input type="checkbox"/>	<input type="checkbox"/>	NA	NA
Indicator Species Rank: You can raise the vernal pool indicator rank by one grade if an 'A' egg mass abundance is present.	Indicator Species Rank =			
Species of Conservation Concern ³ : Check if a Species of Concern listed under #3 below was observed on site.	<input type="checkbox"/>	NA	NA	NA
Final Species Rank: You can raise the overall species rank by one grade if a species of conservation concern is present.	Final Species Rank =			

HABITAT RANKING	A	B	C	D
Metapopulation Potential ⁴	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat Integrity ⁵	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat Diversity ⁶	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protection from Threats ⁷	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scoring System: A = 4 B = 3 C = 2 D = 1 Habitat Rank: A = 14-16; B = 10-13; C = 7-9; D = 4-6	Habitat Score = Habitat Rank =			

<p>Combined Rank: Combine the Species and Habitat Rank, list the higher rank first. If they are the same rank simply list the common rank.</p> <p>Comments: Summarize main reasons for the final rank, and additional considerations used to adjust it.</p>	<p>Combined Rank =</p> <p><i>Comments:</i></p>
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SPECIES RANKING GUIDELINES

- Vernal Pool Indicator Species:** Count the number of indicators observed for all the pools at a site. Indicators include mole salamanders (*Ambystoma* spp.), wood frogs (*Lithobates sylvaticus*), Eastern spadefoots (*Scaphiopus holbrookii*), and any species of fairy or clam shrimp.

Rank: A = 3+; B = 2; C = 1; D = No indicator species.
- Egg Mass Abundance:** Use this factor to identify good to exceptional breeding activity in a single pool (may be an isolated pool or any one pool within a vernal pool cluster).

A Rank = At least one pool supporting a high density of egg masses (combined species total over 100)

B Rank = 20 or more spotted salamander egg masses and/or 40 or more wood frog egg masses
- Species of Conservation Concern associated with vernal pools**
(Tracked species should also get their own Element Occurrence if present at a site)

You may increase the species rank by one grade if a Species of Concern listed below is observed in the vernal pool basin or core habitat (defined as within 200 feet of the pool edge):

- Jefferson Salamander (*Ambystoma jeffersonianum*; G5/S3; Category 2b)
- Blue-spotted Salamander (*Ambystoma laterale*; G5/S1; Category 3a)
- Marbled Salamander (*Ambystoma opacum*; G5/S3; Category 2c)
- Fowler’s Toad (*Anaxyrus fowleri*; G5/S3S4; Category 2c)
- Spotted Turtle (*Clemmys guttata*; G5/S3S4; Category 2b)
- Cope’s Gray Treefrog (*Hyla chrysoscelis*; G5/S1; Category 3a)
- Northern Leopard Frog (*Lithobates pipiens*; G5/S2S3; Category 3c)
- Southern Leopard Frog (*Lithobates sphenoccephalus utricularius*; G5/TNR/S1; Category 3a)
- Mountain Chorus Frog (*Pseudacris brachyphona*; G5/S2; Category 3b)
- Upland Chorus Frog (*Pseudacris feriarum*; G5/S1; Category 3a)
- Western Chorus Frog (*Pseudacris triseriata*; G5/S1; Category 3a)
- Eastern Spadefoot (*Scaphiopus holbrookii*; G5/S2S3; Category 3b)

*Categories are based on the priority score table for Species of Greatest Conservation in Need (SWAP 2015):
Category 1 - Globally or Regionally Rare Species with a score of 1, 2 or 3
Category 2a - Prevent common species from becoming at risk with a score of 1 or 2
Category 2b - Prevent common species from becoming at risk with a score of 3 and regionally of 'Very High Concern'
Category 2c - Prevent common species from becoming at risk with a score of 3 and regionally of 'High Concern'
Category 3a - Maintain Rare Natives with a score of 1 or 2;
Category 3b - Maintain Rare Natives with a score of 3 and regionally of 'Very High Concern'
Category 3c - Maintain Rare Natives with a score of 3 and regionally of 'High Concern'

HABITAT RANKING GUIDELINES

4. **Metapopulation Potential:** Identify pool clusters by ‘grouping together’ pools located <2000 ft apart. A pool does not need to be <2000 feet from all the pools in a cluster, just <2000 feet away from at least one other pool in the cluster. Rank as follows: A = 7 or more pools; B = 4-6 pools; C = 2-3 pools; D = Isolated pool. If a major fragmenting feature separates two pools (e.g., a 4-lane highway or large river), they are effectively isolated even if they are less than 2000 feet apart. See more information under ‘Separation Distance’.
5. **Habitat Integrity** - See the Seasonal Pool Site Survey Form for a list of common disturbances
 - A: 1000-2000 foot buffer in all directions around the pool composed of mostly forest and/or naturalized scrub/shrub/meadow areas and:
 - No significant disturbances in the 100 ft vernal pool envelope
 - No significant disturbances impacting over 25% of the 1000 ft terrestrial habitat buffer
 - B. 500-1000 foot buffer in most directions around the pool composed mostly of forest and/or naturalized scrub/shrub/meadow areas and:
 - No significant disturbances impacting over 25% of the 100 ft vernal pool envelope
 - No significant disturbances impacting over 50% of the 1000 ft terrestrial habitat buffer
 - C. 100-500 foot buffer around at least half the pool perimeter composed mostly of forest and/or naturalized scrub/shrub/meadow areas and:
 - No significant disturbances impacting over 50% of the 100 ft vernal pool envelope
 - No significant disturbances impacting over 50% of the 500 ft terrestrial habitat buffer
 - D. Less than 100 foot buffer around over half the pool perimeter composed of forest and/or naturalized scrub/shrub/meadow areas and/or:
 - Significant disturbances impacting over 50% of the 100 ft vernal pool envelope
 - Significant disturbances impacting over 50% of the 500 ft terrestrial habitat buffer

6. Habitat Diversity

Check the vegetation type that best describes the pool based on percent cover of each vegetation type in the pool in late summer. Each pool gets assigned one overall vegetation type. For pool clusters, check each pool type present.

- Leaf litter pool >50% unvegetated. Pools:
- Marsh pool >50% marshy vegetation. Pools:
- Shrub pool >50% shrub vegetation. Pools:
- Mixed marsh/shrub pool >25% shrubs & >25% marshy vegetation. Pools:
- Swamp forest pool: >50% of pool basin with trees and or tree hummocks. Pools:

Tally the number of vernal pool vegetation types present on site (maximum = 5).

A: 4-5 types

B: 3 types

C: 2 types

D: 1 type

7. Protection from Threats

The following is a provisional list for guidance; other factors may be considered when evaluating threats. Protection from threats is most critical for the vernal pool basin and envelope.

A: Vernal pool(s) located on properties highly protected (e.g. conservation easements, designated Natural Areas)

B: Vernal pool(s) located on well protected properties such as state forest or game lands; on the property of a landowner enrolled in a habitat management program or the Clean and Green Program.

C: Vernal pool(s) located on private land in a region of low-moderate residential development, or private or state owned land in a region of low-moderate development of energy extraction and/or infrastructure (e.g. coal, gas, oil).

D: Vernal pool(s) located on private land in a region of high residential development, or private or state owned land in a region of high development of energy extraction and/or infrastructure (e.g. coal, gas, oil).

ADDITIONAL CONSIDERATIONS

Landscape Corridors: Do forested corridors connect the vernal pool or pool cluster to other wetlands, lakes or ponds, riparian zones of streams or rivers, large forest blocks, protected areas, etc. on a landscape scale beyond the 1000 foot terrestrial habitat? If so, describe the landscape context (mostly forested, developed, agriculture, etc.) and what sorts of major barriers (roads, rivers) exist that would inhibit long distance migration of species. Corridors are expected to play an important role in the ability of species to adapt over time to large scale environmental changes such as climate change.

Separation distance guidelines to define a Vernal Pool Animal Assemblage 'Occurrence':

For pools supporting breeding populations of vernal pool indicators, we recommend buffering each pool by 1000 feet. Pools whose 1000 foot buffer overlap should be considered part of the same occurrence. Another way to think of this is that pools less than 2000 feet apart are part of the same cluster. Grouping pools into a unit like this is most appropriate when you have visited all or most of the pools from one end to the other of the cluster, have a good sense of the quality of the community, and know that vernal pool indicators are using the majority of the pools throughout the cluster. Be sure to consider fragmenting features, especially active agriculture, highways and larger streams, deep ravines, etc. to see if that breaks up any clusters.

The conservation zones we recommend for vernal pool wildlife are:

- 1) Vernal pool basin: perimeter of the pool when it is fully flooded in the spring
- 2) Core habitat / envelope: minimum zone from the pool edge out to 100 ft / 31 m; up to 200 ft / 61 m for high quality sites (use this conservation ranking form to determine high quality sites)
- 3) Upland habitat: minimum zone from the pool edge out to 400 ft / 122 m; up to 1000 ft / 305 m for high quality sites (use this conservation ranking form to determine high quality sites)

Other comments and considerations:

Questions/Comments: Contact Vernal Pool Coordinator, spcoordinator@paconserve.org
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