Quabbin Harvest Proposal PR-20-09

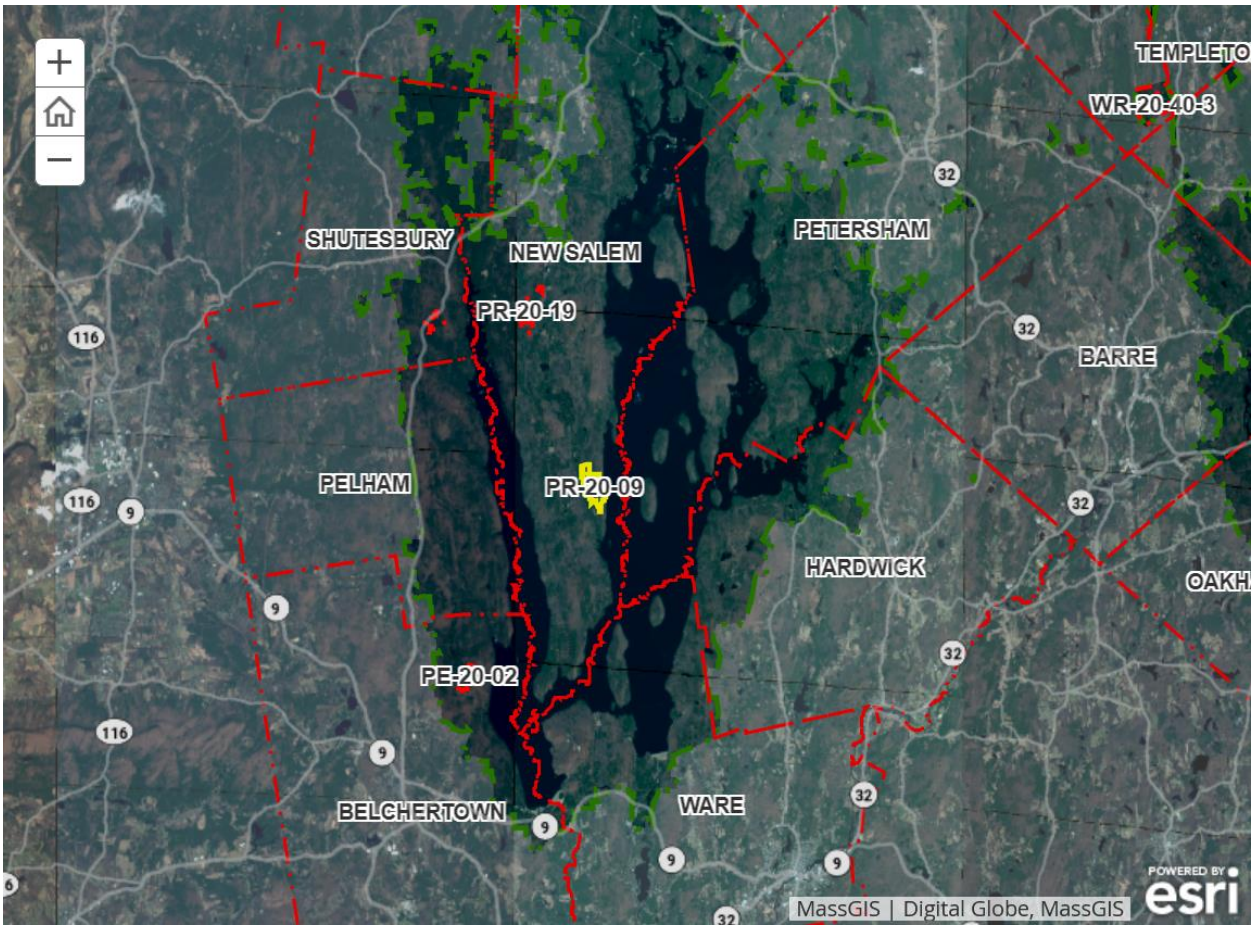
Proposal Goals

An extended period of no forest management is the primary reason for selecting the proposal area. Forestry records indicate no management on the eastern half and as far back as the 1960s for the western half. The purpose of the proposed project is to broaden the diversity of structure and species so the forest is poised to weather the challenges brought by climate change.

Proposal Location

The proposal area lies along the east side of Prescott Brook about 2,000 feet south of Kelly Hill Road and 500 feet east of Prescott Brook Road. About 2/3 of the land faces west with the remainder overlapping a ridge facing east. Specifically, the proposal area is bounded to the south by a small nestled wetland, to the east by steep slope/large surface stone, reservoir shore and past harvest boundary, to the north by an old property line and to the west by Prescott Brook, wetland, seep and steep slope.

Total Acres: 152



General Description

	Overstory Type(s)	Acres
Dominant	Oak/hardwood	59
Secondary	Oak, mixed	68
Secondary	Northern red oak	25

	Understory Type(s)
Dominant	Tree seedlings/saplings dominate site

Description of forest composition/condition:

Generally speaking the entire area is covered with high canopy forest. However, height varies with the tallest forest located on the richer lowland/mid slope and the shortest on the droughtier upper slope/ridge top. Red oak is widespread; in addition to pure stands it mixes with white pine, red maple and other oaks (black and white) on the lower slopes, and mostly other oaks and hickory in uplands. Inclusions to the broader oak/hardwood cover are pockets of white pine-hardwood and remnants of a softwood plantation (white/red pine) just north of the Prescott brook crossing. The southeast part of the area was hemlock/hardwood cover that is now oak/hardwood with the decline/mortality of hemlock over recent decades.

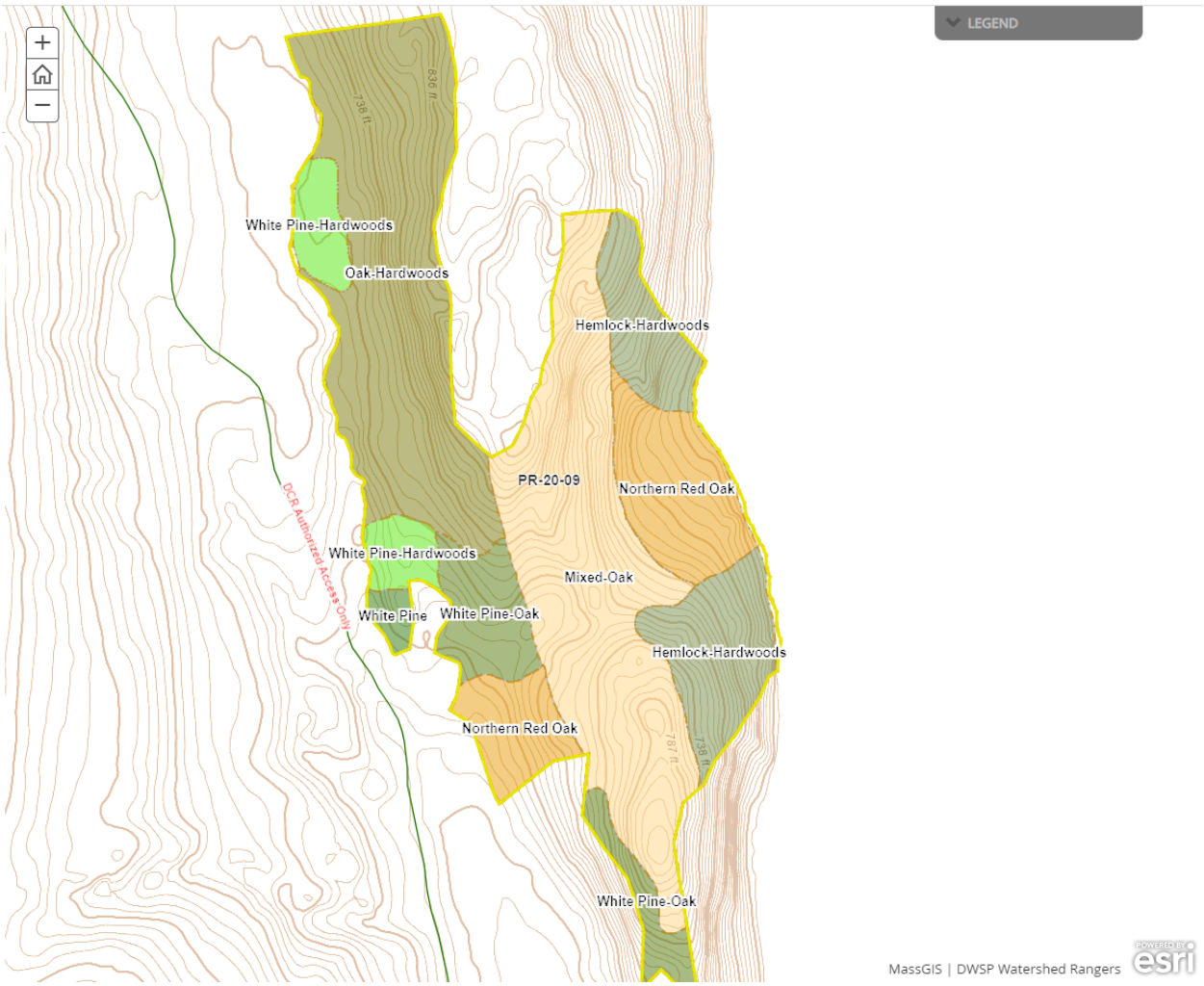
Roughly half the area has had no active forest management since state ownership. About a quarter was thinned in the in the mid 1960s. The most recent work was a mid 1990s seed stage shelterwood in the softwood plantations either side of Prescott Brook Road. A portion of the east boundary abuts a series of patch cuts completed in 1998 (one of the earliest examples of this type of management at the Quabbin).

Generally, the west aspect is dominated by dense white pine regeneration as opposed to the east side which is sparser and mostly black birch. Although the regeneration numbers are good, most has developed under a closed canopy overstory making it difficult to release without significant damage. The exception is the remnant softwood plantation where canopy gaps were made (mid 90s), however the locale's rich soils (arable) tended toward dense hayscented fern ground cover which is a major deterrent to natural regeneration. That said, black birch, red maple, white ash, cherry and hornbeam are the most common regeneration species.

There has been heavy mortality of oak, likely due to gypsy moth, the extent of which became apparent upon full leaf out (May 2019).

Assessment of Terrestrial Invasive Species:

Field observation identified (listed in highest to lowest frequency) Honeysuckle, Japanese Barberry, Multiflora Rose and Oriental Bittersweet. Distribution is typical of the watershed with the greatest diversity and density found in and around areas of past human habitation, the vast majority of which are along watershed access roads. Radiating away from access roads, generally speaking, diversity and density declines, with the exception being in areas of wetter soil (seeps, intermittent brooks) where invasives take on more of a serpentine pattern matching the flow of water. Parts of the proposal area's western edge have infestation that has affected development of native forest. A primary concern is that the infestation keeps moving east affecting growth/development of native forest.



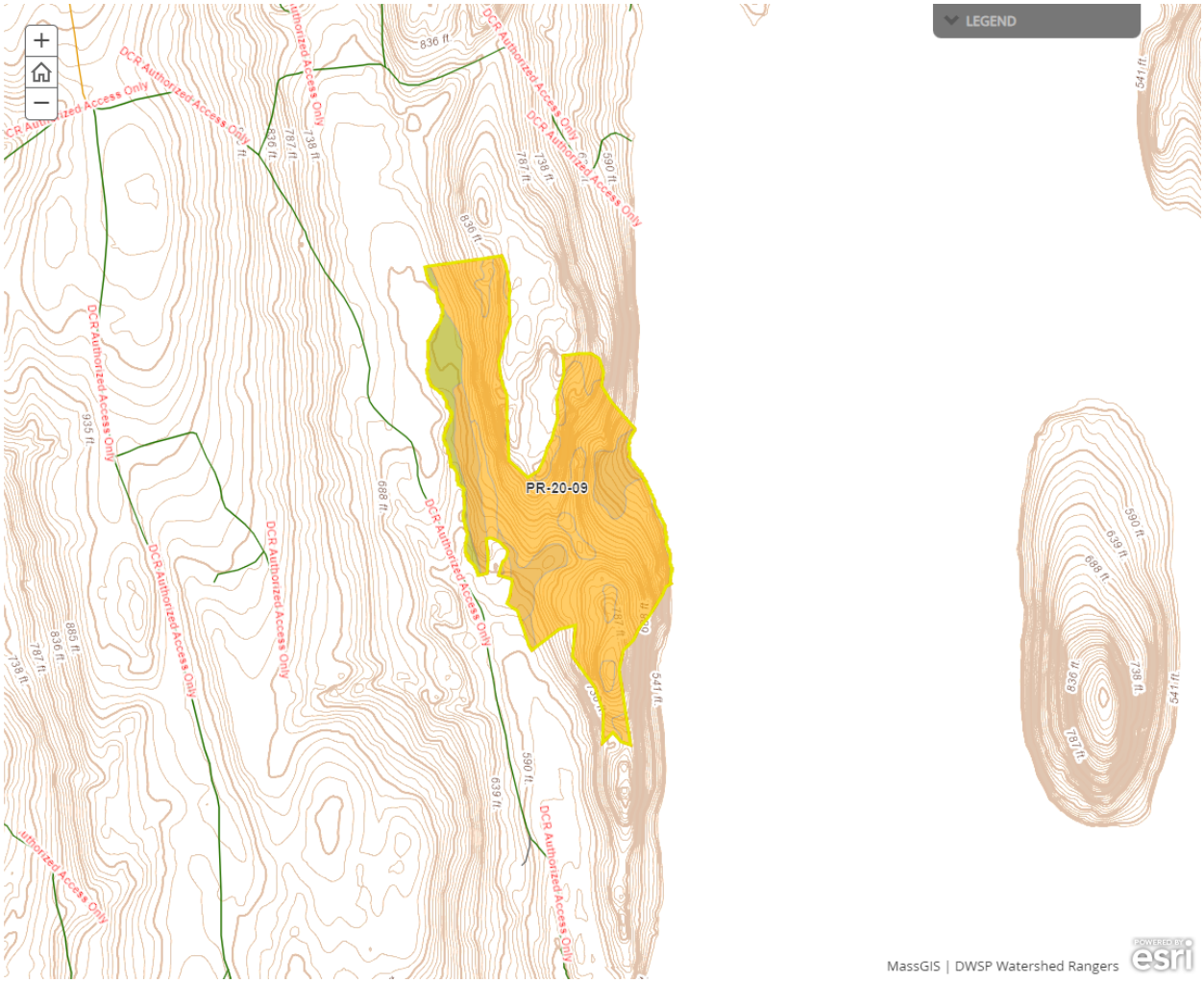
Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	75
Well Drained Thick	20

Moderately Well Drained	5
Poorly to Very Poorly Drained	0

Rocky Chatfield - Hollis soils cover most of the area including the mid and upper slopes.

Lower slope and bottom land section is a mix of well drained thick and moderately well drained soils classified as Canton and Newfield fine sandy loams; both of which are quite stony.

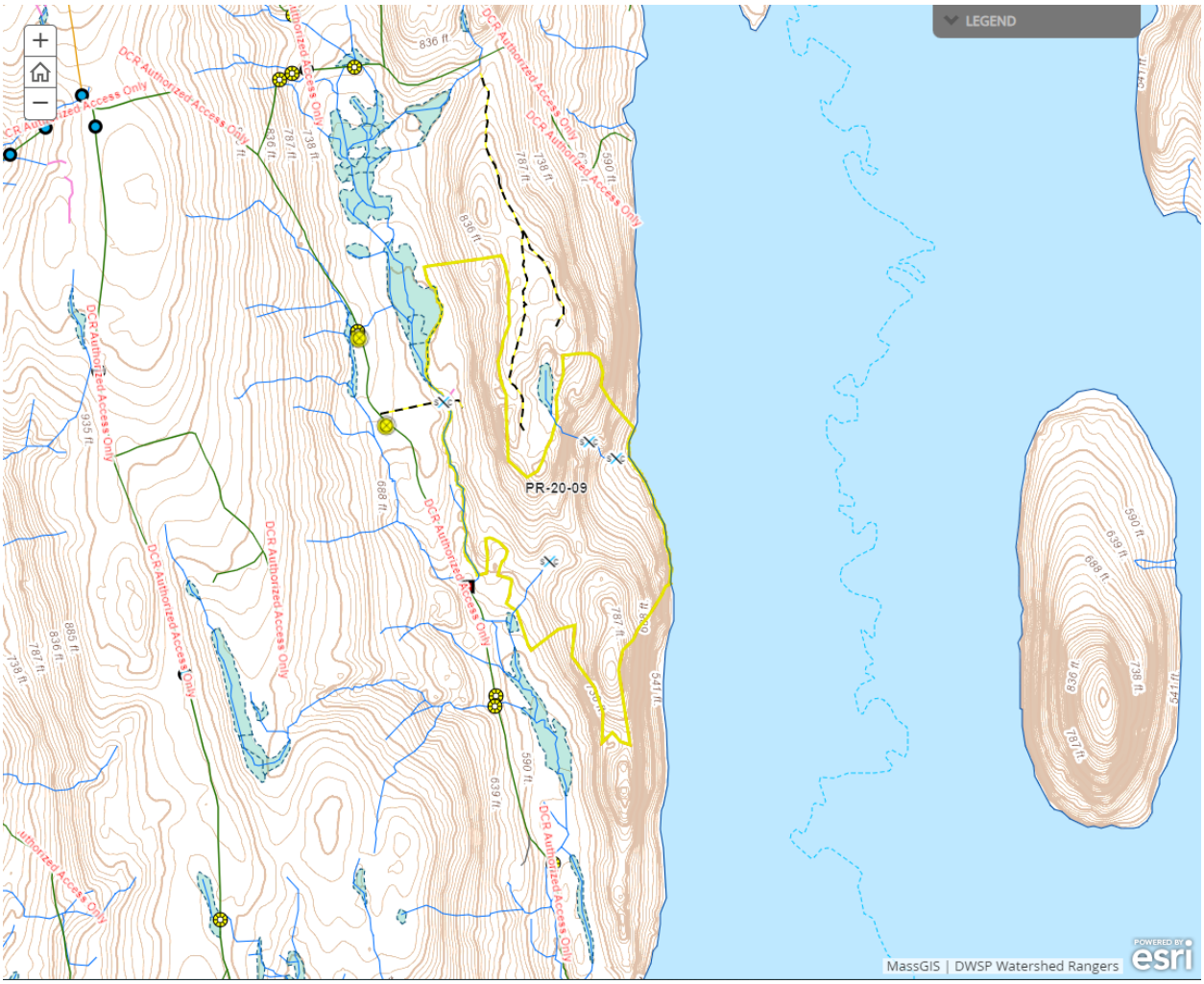


Wetlands

- Wetlands present? - **No**

- Streams present? - **Yes**
- Vernal pools present? - **None known**
- Seeps present? - **None known**
- Are stream crossings required? - **Yes**
- Are wetland crossings required? - **No**
- Is logging in filter strips planned? - **Yes** **(Riparian Zone Mgt)**
- Is logging in wetlands planned? - **No**

Prescott Brook would be crossed at a previously used location. The crossing structure is gone, but the foundation/abutments are present. Temporary skid bridges would be able to span the abutments. Three intermittent brook crossings using temporary structures are also planned.



Silviculture

Acres in Intermediate cuts: **0**

Acres in prep/establishment cuts: **0**

Acres in Regeneration cuts: **27**

Average regen opening size: **1.5**

Maximum regen opening size: **4.5**

Description of advance regeneration in proposal area:

Dense seedling/sapling white pine covers much of the west aspect. The east side is less dense and composed of seedling/sapling black birch, red maple, ash, sugar maple and white pine.

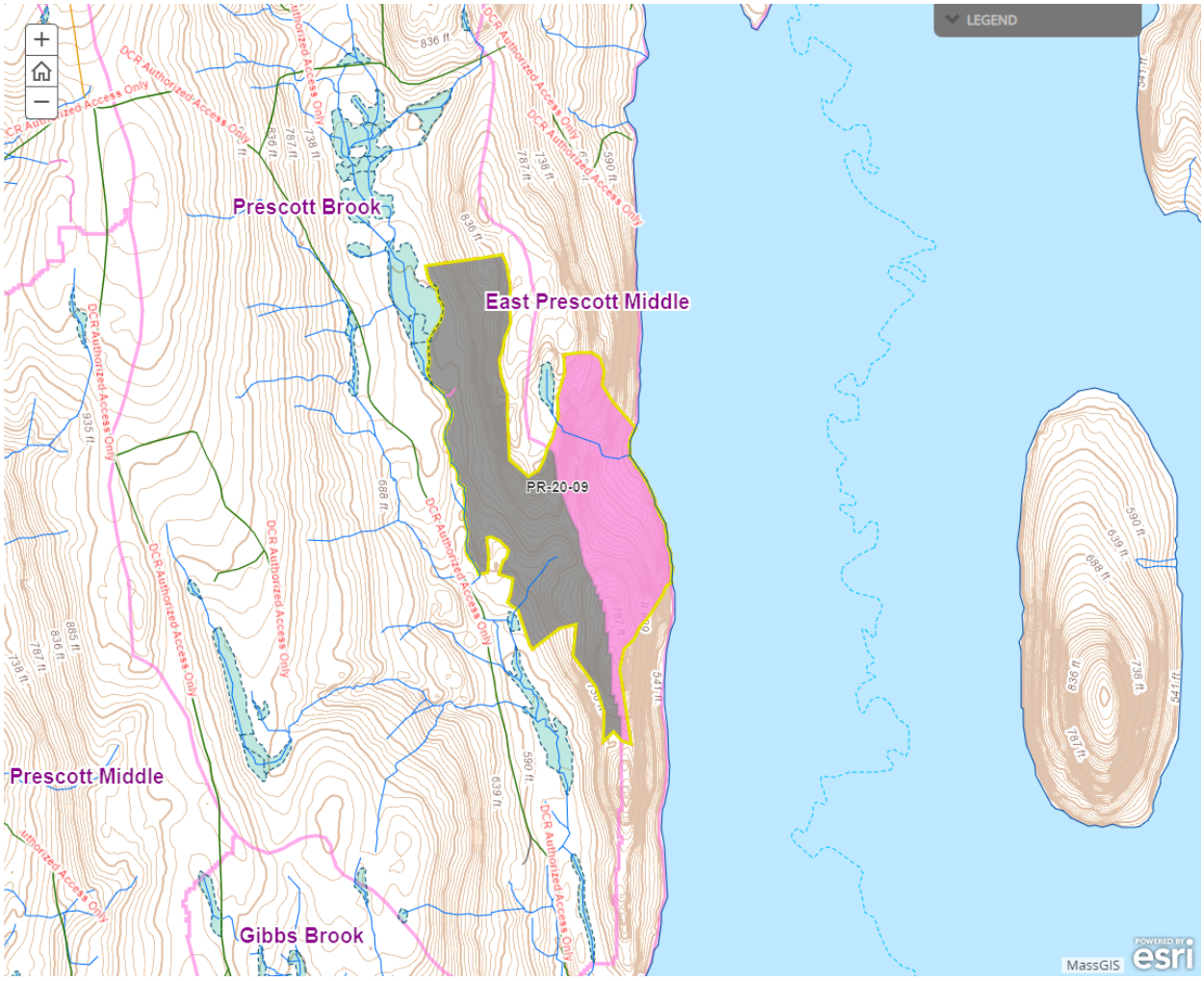
General comments on silviculture proposed:

The goal of the proposed silviculture is to create a new forest age class that is identifiable and free to grow. Larger openings would be sited in drier soil types that historically exhibit a higher probability of more diverse and timely regeneration capacity. A significant variable to the planned silviculture is oak mortality due to gypsy moth infestation. Minor infestation (<33%) would not alter planned silviculture; higher levels would prompt consideration of shifting silviculture to salvage, resulting in much larger openings and potentially minimal separation between openings. Assuming low infestation, opening placement would be prioritized by vigorous advance regeneration, poor form/quality, terrain and aspect. About 75% of openings will face west with the remainder facing east, northeast or south.

Subwatershed Analysis

Sub-watershed number	Total DCR-owned Acres	Acres Regenerated on DCR Land in the last 10 years	Acres Remaining for Regenerating Up to the 25% / 10 Year	Acres part of this proposal
8 (East Prescott Middle)	319	15	65	50
74 (Prescott Brook)	1694	134	288	102

For subwatershed Prescott Brook (74), the "acres regenerated in the last ten years" figure is unusually high due to planned red pine removal on the west side of the subwatershed and potential oak salvage in the south end of the subwatershed (west side of Prescott Brook Road).



Harvesting Limitations

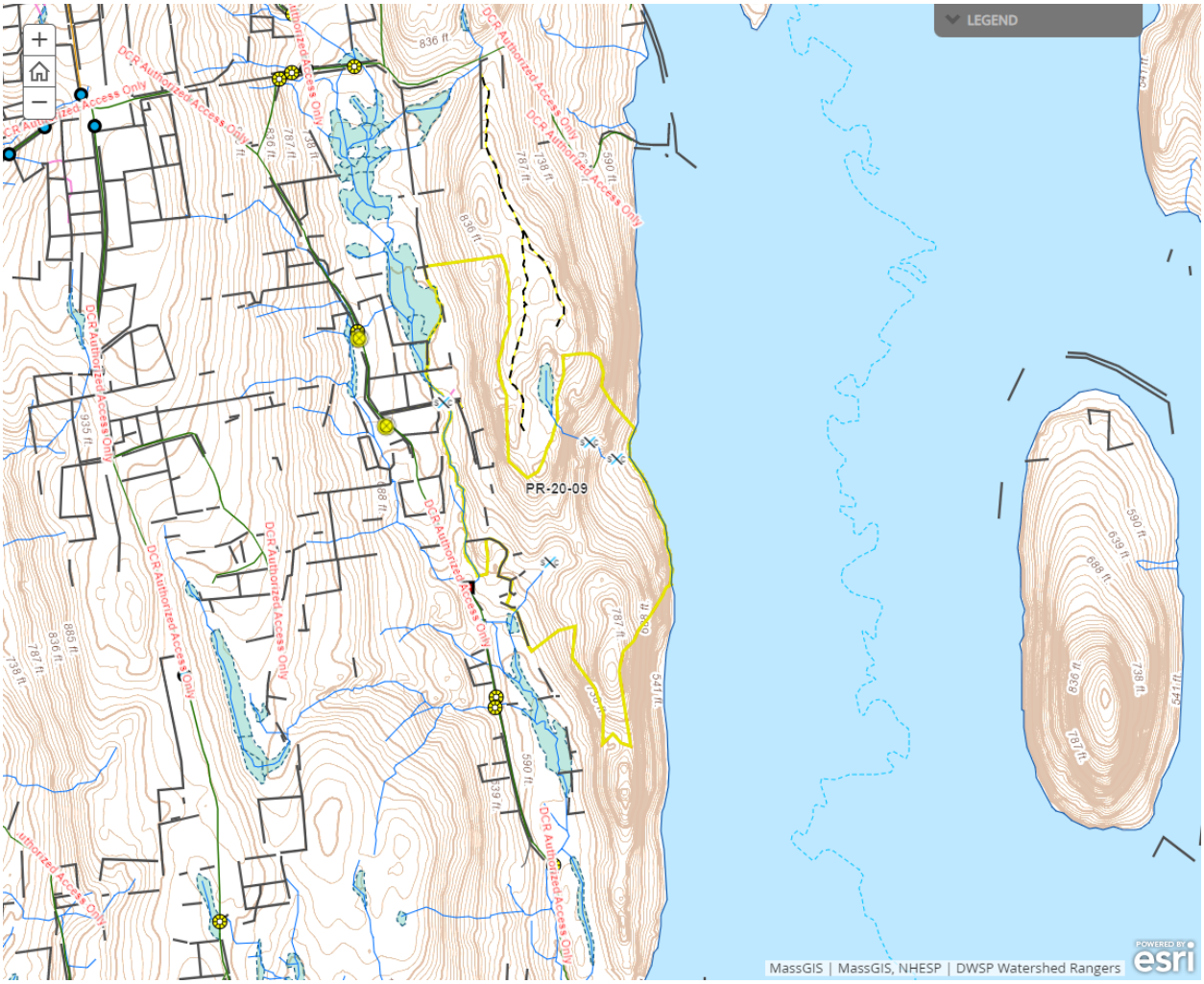
Forwarder required: **Yes**

Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

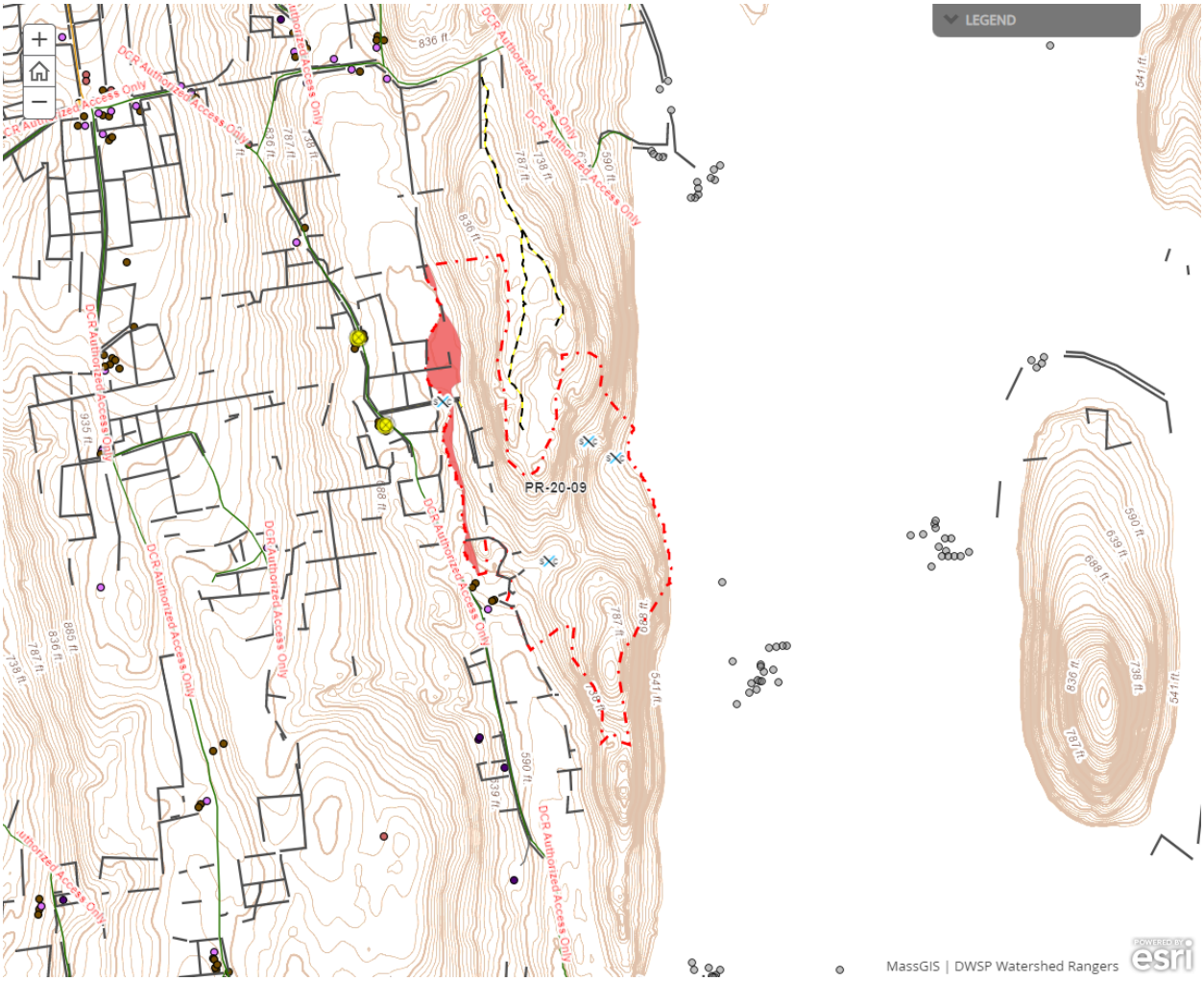
Forwarding system would be best for the Prescott Brook crossing and minimizing impact to cultural resources (mainly stone walls).



Cultural Resources

Comments on Cultural Resources:

A spring house was found at the bottom of the brook on the east side of the proposal area (brook flows directly into reservoir). All foundations located near harvest operations will be flagged and protected. Stone walls will be flagged and avoided as much as possible. Existing barways will be used where feasible and harvest layout will protect walls as much as possible. If applicable DWSP will follow any additional recommendations from DCR's Archeologist regarding protection of sensitive sites.



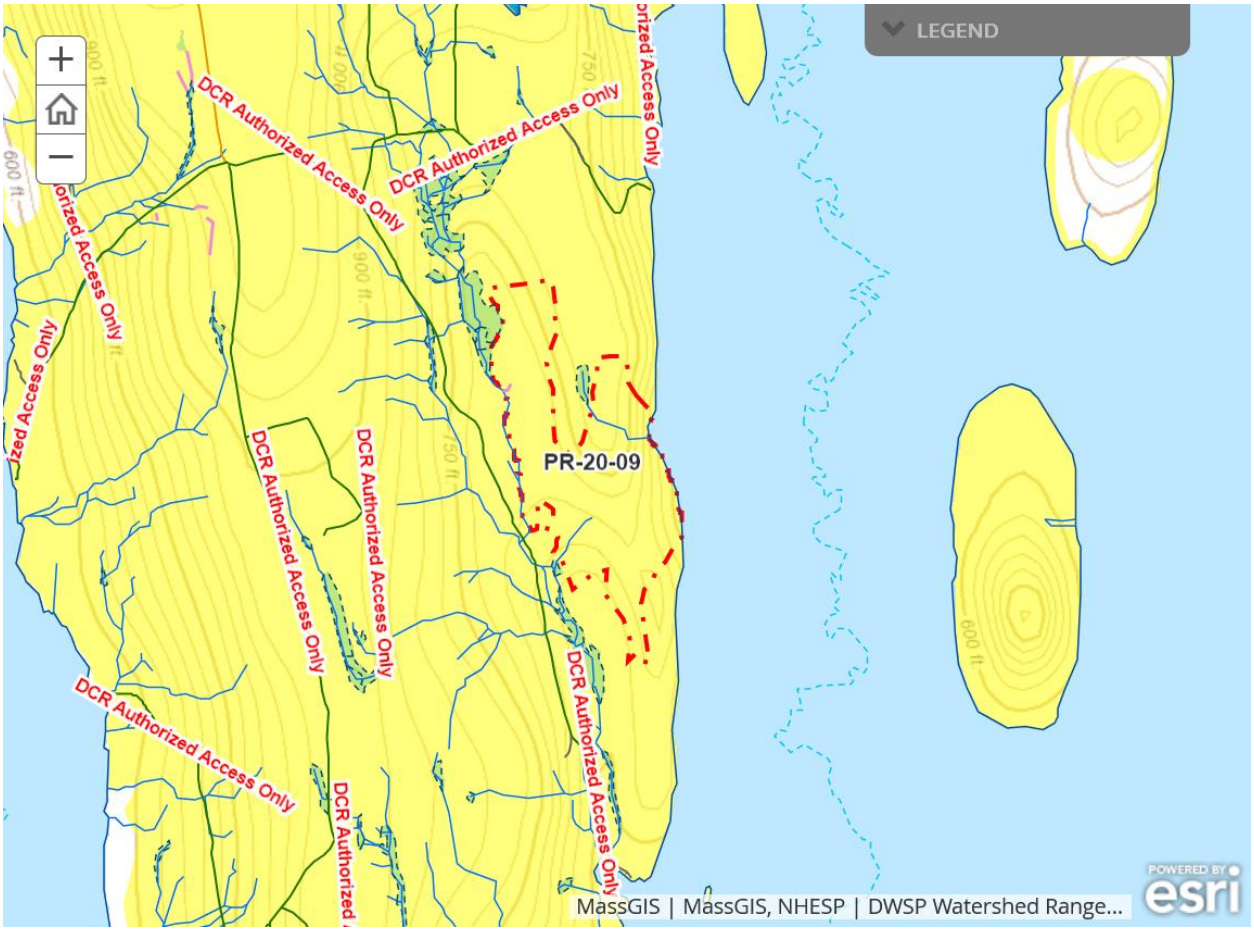
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

No comments...

Comments on Rare Species/Habitats:

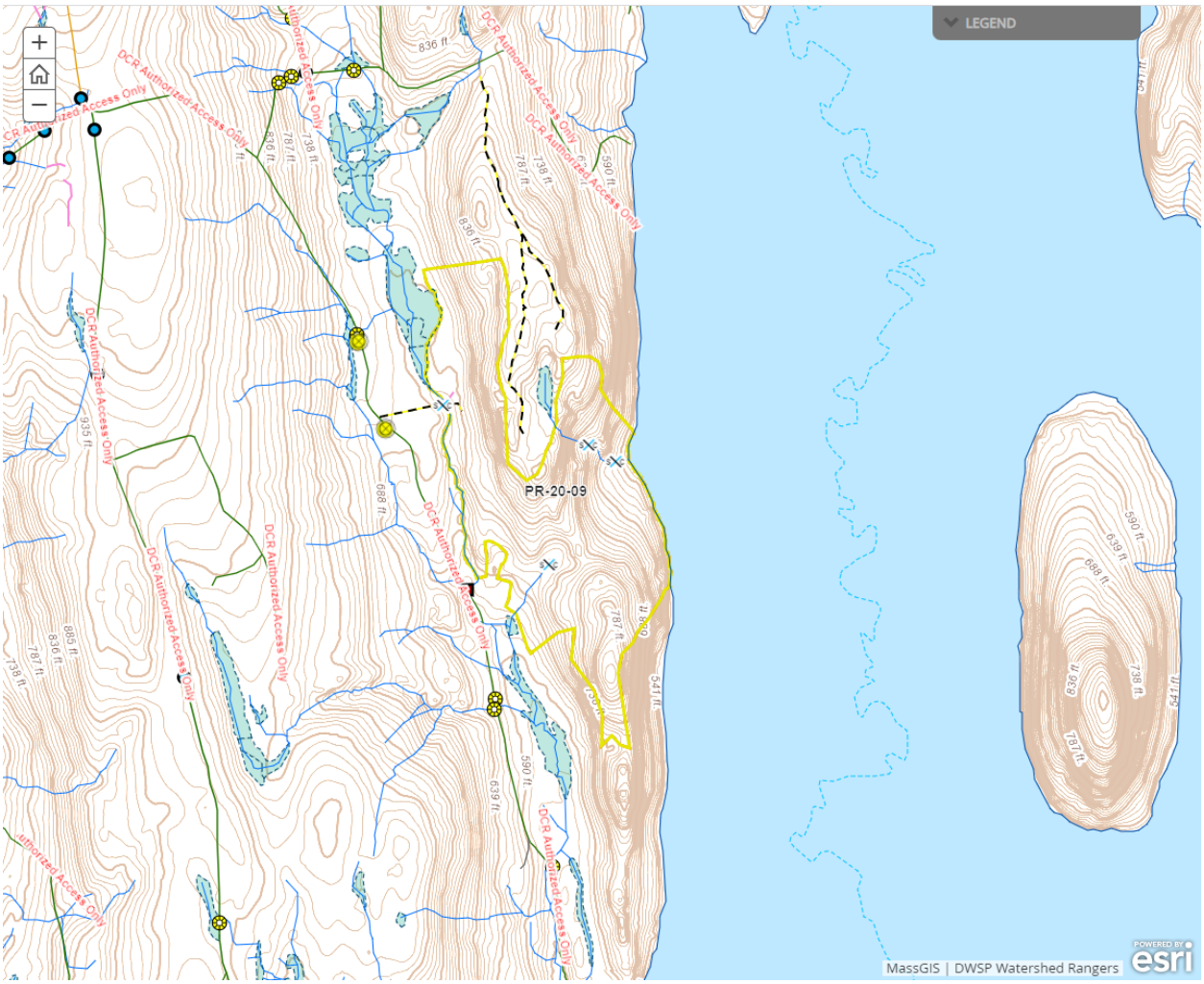
NHESP has determined that certain state-listed sensitive species or habitats may exist within the lot proposal area. To protect them from unnecessary disturbance, detailed information regarding affected species and their locations is not included in this report. DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed activity.



Environmental Quality Engineering

Comments on EQ Issues:

The Prescott Brook crossing presents a good opportunity for DSWP's short term stream monitoring program associated with watershed forestry projects.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: Yes

Culverts needed: No

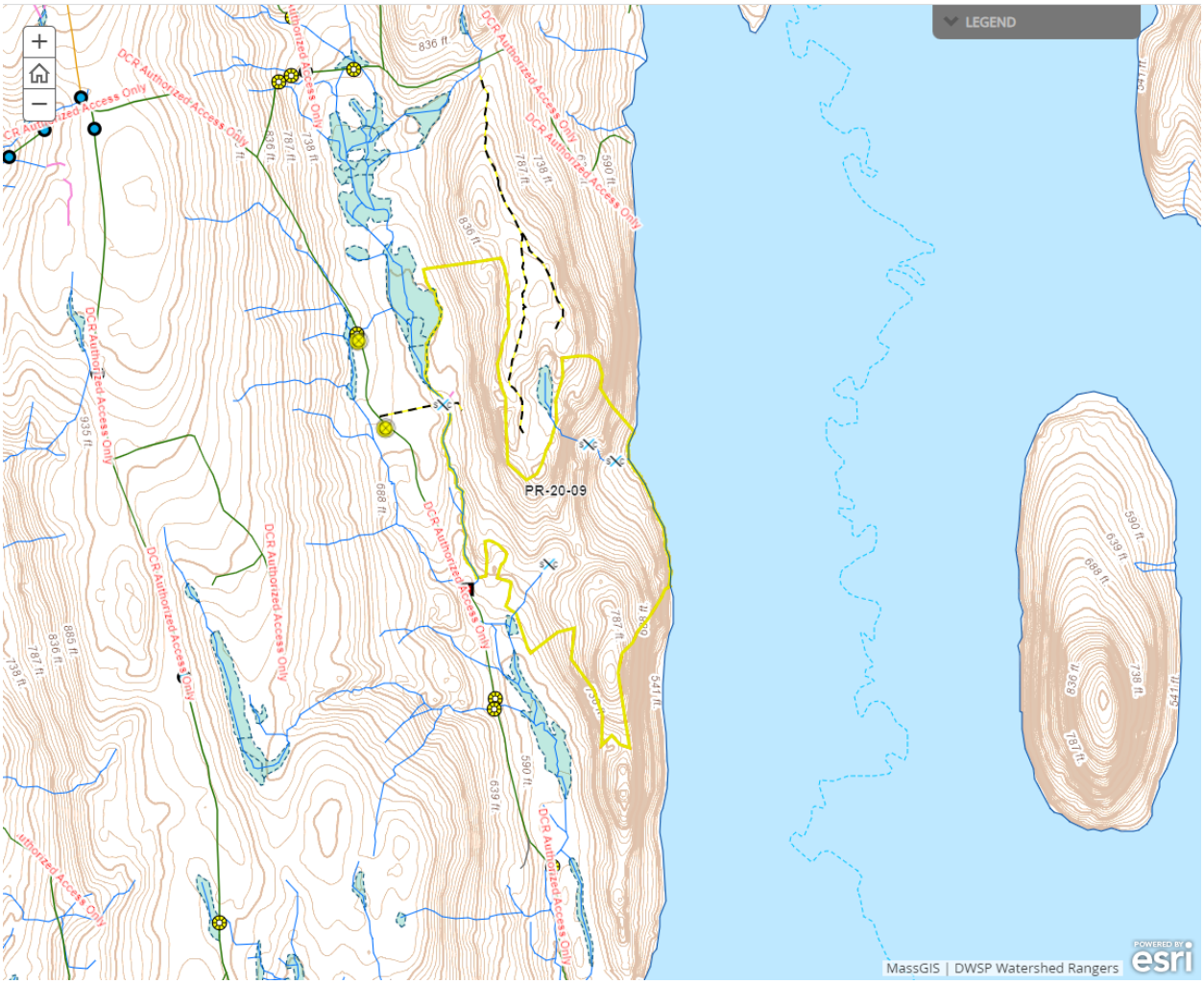
Work needed on permanent bridges: No

Beaver issue: Yes

Further comment on access needs:

Gravel needed to set the landing for supporting log trucks.

Slightly north of the landing (on west side of Prescott Brook Road) is a wetland that has been impounded by beaver in years past. There is a deceiver device to prevent water from flowing onto the road, which is monitored and maintained regularly.



DWSP FY 2020 Forestry Proposals – Master Legend for story maps