

Ranking Conservation Areas in Michigan



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Purpose and Region of Analysis

This process is designed to rank conservation areas of Michigan with respect to priority for fire management to guide the development of a Fire Needs Assessment.

Criteria/Methods

The criteria emphasized conservation targets--species and natural communities--that depend on regular fire as a natural disturbance. These targets were prioritized using complementarity, conservation value, threat/feasibility and leverage.

- **COMPLIMENTARITY (CO)**--For this criterion, we used the concept of “irreplaceability” as it applies to fire dependent targets and scored each site as:
 - HIGH (Tier 1) - the only known site within a highly imperiled target's range or the only site within its ecoregion;
 - MEDIUM (Tier 2) - the only sites in the ecoregion where communities and/or species can be conserved, or which contain a high concentration of fire dependent elements; and
 - LOW (Tier 3) - sites where neither of the above criteria are met.

- **CONSERVATION VALUE (CV)**--This criterion has three components: the number of occurrences of viable, the fire dependent natural community conservation targets in the site; the number of DIFFERENT kinds of these conservation targets; and the “Bio-diversity Health” of these conservation targets.
 - The first two components were combined into an index of “Number/Diversity of Targets.” The scores for number/diversity were ranked from 1=Very High, to 4=Low.

- For “Bio-diversity Health,” scores were based on the site viability ranks from each of the ecoregional assessments. Three possible rankings were 1= High, to 3=Low.
- The values for "Biodiversity Health" and "Number/Diversity of Targets" were combined to provide the CV.
- **THREAT-FEASIBILITY (TF)**--This criterion incorporates both urgency of threat and feasibility (or probability) of conservation, and was developed using **LANDFIRE Fire Regime Condition Class (FRCC)** data.
 - The two datasets were combined so that a higher FRCC value and a shorter Mean Fire Return Interval (MFRI) gave the highest threat ranking.
 - Feasibility reflects the potential for restorative fire management. This criterion was developed using spatial data that captures ownership patterns and barriers to fire management, e.g. road density, percentage of urban land, etc.
- **LEVERAGE**--This criterion emphasizes the best management resources as they potentially influence local, state and regional fire management strategies. Each site was ranked as High, Medium, or Low with LOW as the default value.

Priority Scoring--Values were assigned across the four criteria to calculate a final score with the lowest total score equated to highest priority.

Products/Outcomes

Each criterion resulted in a map where all the conservation action portfolio sites were rated. The final result was a map that prioritized each site as very high, high, medium or low.

The map was sent out for partner review, and is anticipated to be a valuable tool for both internal communication and strategic planning. The Nature Conservancy's science-based assessment provides a foundation for stakeholder planning as well.

LANDFIRE tools--Fire Regime Condition Class (FRCC) and Mean Fire Return Interval (MFRI) were used because they gave the only ecological assessment of vegetation conditions across Michigan. FRCC provided an index of ecological departure, comparing reference conditions to current conditions.

FRCC alone does not indicate departure of fire regimes, however, because departure could be caused by a number of factors, including logging, herbivory and altered fire regimes. To address fire management issues, the Michigan Field Office (MIFO) coupled FRCC with MFRI in order to tease out the highest departure levels that were caused by fire compared to other factors.

Benefits of the process

- Used existing data
- Background data was objective, science-based
- Considered ecological and feasibility factors
- Established common references
- Process was insular within TNC, thus providing common reference points that build on existing data
- Collaborative learning experience for TNC staff that can be replicated
- Provides solid foundation for future fire management in Michigan
- Cost effective in that staff resources were used efficiently

Suggestions for others

Training on using the LANDFIRE tools is essential, either by conferring with the TNC-LANDFIRE national team members or by training the individuals who would most likely continue using the tools.

References

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