



**National Park Service  
Fire Ecology Annual Report  
Calendar Year 2009**

**NORTHERN GREAT LAKE AREA PARKS (VOYA, SACN, GRPO, ISRO, APIS)**  
Fire Ecologist, Scott Weyenberg

**A. Summary**

During the spring of 2009 area fire staff conducted 4 prescribed burns at SACN and one at VOYA. This is the second consecutive year that burns were completed at SACN. Once again a burn was completed partially on private property to maintain continuity in restoring the ecosystem. The burns took place in oak savanna, prairie and red/white pine forest.

A fire effects monitor was again hired at VOYA. He assisted in fire effects monitoring at VOYA and SACN and also assisted resource management with projects. A “trade” was set up with VOYA resource management where they borrowed our monitor to help with spring projects and they lent us one seasonal to assist with reading the monitoring plots.

The fire ecologist continues to serve on the Minnesota Interagency Prescribed Fire and Fuels Working Group. The working group put on a monitoring workshop of which the ecologist taught two sessions. He also assisted a nearby state park in setting up monitoring protocols in their oak savannas.

The implementation plans developed in December 2008 for several INDU burn units and are being reviewed by resource management staff. Implementation plans for the SACN burn units are in progress. These plans will help organize and focus treatment efforts as well as help the ecologist to track progress and treatments at parks that are serviced remotely. At INDU, where more than one program may conduct treatments at a site, it is hoped that these plans will help coordinate their efforts.

Grand Portage successfully burned a small grassland with the help of the BIA fire crew.

Isle Royale managed a small, 5 acre, wildland fire use fire.

**Table 1. Fire Effects Plot Workload 2009**

| Park           | Monitoring Unit   | Type of Plot (FMH, photo point, other) | Pre-burn | Immed. Post | Postburn (1-20 yrs) | Total Plots |
|----------------|-------------------|----------------------------------------|----------|-------------|---------------------|-------------|
| Voyageurs      | Red/White Pine    | FMH forest plot                        |          | 1           | 7                   | 34          |
| Voyageurs      | Mixedwood         | FMH forest plot                        |          |             | 0                   | 13          |
| Voyageurs      | Jack Pine         | FMH forest plot                        |          |             | 2                   | 12          |
| Voyageurs      | Red/White Pine    | Other                                  |          | 4           | 47                  | 77          |
| Voyageurs      | Mixedwood         | Other                                  |          |             | 15                  | 15          |
| Voyageurs      | Aspen/Birch       | Other                                  |          |             | 8                   | 8           |
| Voyageurs      | Sedge Meadow      | Other                                  |          |             | 6                   | 6           |
| Voyageurs      | Oak Savanna       | Other                                  |          |             | 0                   | 3           |
| Voyageurs      | Red/White Pine    | Photo Points                           |          |             | 12                  | 12          |
| Voyageurs      | Jack Pine         | Photo Points                           |          |             | 1                   | 1           |
| Voyageurs      | Mixedwood         | Photo Points                           |          |             | 6                   | 6           |
| Voyageurs      | Oak Barrens       | Photo Points                           |          |             | 1                   | 1           |
| Voyageurs      | Sedge Meadow      | Photo Points                           |          |             | 1                   | 1           |
| St. Croix NSR  | Tallgrass Prairie | Other                                  | 4        | 10          | 14                  | 16*         |
| St. Croix NSR  | Oak Savanna       | Other                                  | 0        | 0           | 1                   | 6           |
| <b>Total**</b> |                   |                                        | <b>4</b> | <b>15</b>   | <b>121</b>          | <b>211</b>  |

\*Some plots were abandoned in 2009.

\*\*136 total reads.

**Table 2. Fire Ecology Staffing 2008**

At Voyageurs, fire effects funding provided 13 pay periods at the GS-5 level for fire effects monitoring. A full time monitor was hired for the third time at VOYA. One resource management seasonal assisted in reading several fire effects plots. In return, Dominic assisted resource management with their projects. Most of the monitoring at SACN was completed with Dominic's assistance.

| Ecologist and Monitors | Starting Date | Ending Date | # of Pay Periods | READ Qualified (Yes or No) | Training and Development    |
|------------------------|---------------|-------------|------------------|----------------------------|-----------------------------|
| Scott Weyenberg        | 8/8/04        | Permanent   | 26               | Yes                        | Prescribed Fire conference. |
| Dominic Ruis           | 4/28/09       | 9/30/09     | 13               | No                         | S-212                       |

**Table 3. Management Objectives and Monitoring Results 2009**

Complete the following summary table for each monitoring unit for which analysis is available. Monitoring results should include time frame, confidence interval, and sample size.

| Burn Unit        | Management Objective (Restoration) | Monitoring Results (XX% confidence interval)           | Objective Achieved? |
|------------------|------------------------------------|--------------------------------------------------------|---------------------|
| Whispering pines | Reduce fuel load by 30-80%         | Formal analyses to be completed winter of 2009, n =19. | <b>*Yes</b>         |
|                  | Reduce litter depth by 90%.        |                                                        | <b>*Yes</b>         |
|                  | Reduce ABBA density by 30%.        |                                                        | <b>*Yes</b>         |

| Burn Unit   | Management Objective (Restoration) | Monitoring Results (XX% confidence interval)                                 | Objective Achieved? |
|-------------|------------------------------------|------------------------------------------------------------------------------|---------------------|
| Gagnon      | Reduce brush cover by 50%          | 27% reduction by immediate post burn (8/07). 2008 data to be analyzed. n= 4. | <b>**Yes</b>        |
| Mica Island | Reduce ABBA density to <100tpa.    | Formal analyses to be completed winter of '09/'10. n = 10.                   | UNK                 |

\*Based on observations made during post-burn sampling.

\*\*Based on 2008 observations.

## B. Fire ecologist accomplishments and areas of focus

This section deals with roles and functions of the ecologist. Identify accomplishments and/or focus areas along with a rough estimate of the amount of time spent in these areas (see table format and example below). This includes planning documents produced, reviewed, or collaborated (e.g. fire management plans, monitoring plans, prescribed fire or mechanical treatment plans, etc.), presentations given and audience, meetings and task groups attended, contracts reviewed, interagency collaboration efforts, volunteer hours managed, and scientific or research publications produced.

**Table 4. Fire Ecologist Accomplishments/Focus Areas**

| Category                  | Percent Time | Accomplishments and/or areas of activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Planning                  | 45%          | <ul style="list-style-type: none"> <li>• Wrote implementation plans for 11 VOYA sites.</li> <li>• Revised/reviewed field protocols for INDU.</li> <li>• Wrote 7 implementation plans for INDU burn units.</li> <li>• Wrote or revised 7 burn plans for SACN.</li> <li>• Organized and planned 4 SACN burns.</li> <li>• Worked on establishing updated agreements between the WI DNR and NPS.</li> <li>• Supervised and/or performed line prep for SACN burn units.</li> <li>• Reviewed all INDU protocols and monitoring practices.</li> </ul> |
| Presentations             | 3%           | <ul style="list-style-type: none"> <li>• Wrote article for Fire Effects Newsletter.</li> <li>• Wrote success story (SACN).</li> <li>• Presented data at INDU annual fire planning meeting.</li> <li>• Presented information on the Interagency Fuels Treatment – Decision Support System (IFT-DSS) at MNICS annual meeting.</li> <li>• See also interagency work.</li> </ul>                                                                                                                                                                   |
| NPS Meetings/ task groups | <1%          | <ul style="list-style-type: none"> <li>• Attended Prescribed Fire conference.</li> <li>• Attended MNICS annual meeting.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                             |
| Interagency work          | 5%           | <ul style="list-style-type: none"> <li>• Member of MNICS Fire and Fuels working group.</li> <li>• Taught portions of the Monitoring Workshop put on by the working group.</li> <li>• Member of test group for IFT-DSS.</li> </ul>                                                                                                                                                                                                                                                                                                              |
| Fire Assignments          | 2%           | <ul style="list-style-type: none"> <li>• 1 Prescribed fire at VOYA.</li> <li>• 2 Prescribed fires at SACN.</li> <li>• Assisted on 1 fire use fire (ISRO) and 2 wildfires (VOYA).</li> </ul>                                                                                                                                                                                                                                                                                                                                                    |
| Research                  | 10%          | <ul style="list-style-type: none"> <li>• Assisted in Fire Effects on Archeological Resources research project at VOYA.</li> <li>• Assisted in JFSP research project (Fire effects on Oriental</li> </ul>                                                                                                                                                                                                                                                                                                                                       |

|                   |     |                                                                                                                                                                                                                                                                                                                                    |
|-------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |     | Bittersweet). <ul style="list-style-type: none"> <li>Assisted in grant proposal to Challenge Cost Share Program (Fire History of Voyageurs N. P.)</li> <li>Reviewed JFSP on Interagency Fuels Treatment Decision Support System (member of test users group).</li> <li>Wrote letters of support for two JFSP proposals.</li> </ul> |
| Field sampling    | 20% | <ul style="list-style-type: none"> <li>Field sampling at SACN (19 plots).</li> <li>Site visits to current and future burn units (SACN).</li> <li>Field sampling at VOYA (121 plots).</li> </ul>                                                                                                                                    |
| Data entry        | <1% | <ul style="list-style-type: none"> <li>Data entry for SACN plots.</li> </ul>                                                                                                                                                                                                                                                       |
| Data Conversion   | 5%  | <ul style="list-style-type: none"> <li>Addressed database problems. (includes ~non-functioning database, data organization and data entry errors)</li> </ul>                                                                                                                                                                       |
| Data analysis     | 5%  | <ul style="list-style-type: none"> <li>Established preliminary thresholds on stand structure parameters for VOYA units.</li> <li>Analyzed data for Dune Ridge, Inland Marsh 5, Kintzle Ditch &amp; Cowles Dune (INDU).</li> </ul>                                                                                                  |
| Supervision/Admin | 5%  | <ul style="list-style-type: none"> <li>Hired Fire Effects Monitor.</li> <li>Supervision: work allocation and training for monitor.</li> <li>GovTrip, time sheets, travel documentation, purchasing, staff meetings, etc.</li> </ul>                                                                                                |
| Training          | 0%  |                                                                                                                                                                                                                                                                                                                                    |
| Miscellaneous     | 5%  | <ul style="list-style-type: none"> <li>Revised GIS data for SACN, VOYA and INDU.</li> <li>Updated SACN and VOYA plot location and burn unit GIS layers.</li> <li>Reviewed monitoring position.</li> </ul>                                                                                                                          |

### C. Fire effects crew accomplishments and areas of focus

This section deals with roles and functions of the fire effects crew. Identify accomplishments and/or focus areas along with a rough estimate of the amount of time spent in these areas (see table format and example below).

**Table 5. Fire Effects Crew Accomplishments/Focus Areas**

| Category           | Percent Time | Notes                                                                                                                                                                                                |
|--------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FMH plots*         | 20%          | <ul style="list-style-type: none"> <li>9 plots.</li> </ul>                                                                                                                                           |
| WUI plots          | 0%           |                                                                                                                                                                                                      |
| CBI plots          | 0%           |                                                                                                                                                                                                      |
| Other plot work    | 20%          | <ul style="list-style-type: none"> <li>103 project level or photo point monitoring plots.</li> </ul>                                                                                                 |
| Fire Assignments   | <1%          | <ul style="list-style-type: none"> <li>Fire suppression</li> </ul>                                                                                                                                   |
| Fuels Project work | 0%           |                                                                                                                                                                                                      |
| Data entry         | 35%          | <ul style="list-style-type: none"> <li>Completed 80% of the data entry for '08 and finished '07.</li> <li>Learned FFI and error checked much of backlogged data.</li> </ul>                          |
| Data conversion    | 0%           |                                                                                                                                                                                                      |
| Data analysis      | 0%           |                                                                                                                                                                                                      |
| Supervision/Admin  | <1%          | <ul style="list-style-type: none"> <li>Travel, payroll, etc.</li> </ul>                                                                                                                              |
| Training           | 5%           | <ul style="list-style-type: none"> <li>S-212</li> </ul>                                                                                                                                              |
| Miscellaneous      | 20%          | <ul style="list-style-type: none"> <li>Stand age and stand description project.</li> <li>Fuel moisture collection.</li> <li>Website development.</li> <li>Assist other resource programs.</li> </ul> |

\*One of resource management's seasonals assisted with monitoring and miscellaneous projects.

## **E. Annual Report Supplement Additional Information**

Be sure to **complete numbers 1 and 2 below**. Number 3 is optional.

1. *Identify types of fire effects monitoring databases or spreadsheets being used (e.g., FFI, Access, Excel).*

**VOYA:** Data for stand age and fire history are in excel. Some project level monitoring data are still in Excel but will be copied into FFI...sometime.

2. *Annual Meetings - Provide a brief description of the 2009 meeting(s) where fire ecologists present and discuss monitoring results with fire and non-fire park staff, and others have informal discussions.*

**VOYA:** No annual meeting was held this year. Showed FMO some previously burned areas and had informal discussion on fire effects and results.

3. *If further explanation for the Annual Report Supplement information is needed, please provide it here as well as any other information relating to the spreadsheet that you would like to include.*

The ecologist assisted researchers in setting up plots and collecting data for the Fire Effects on Archeological Resources project.

### **Optional**

Attach additional material not already covered: Describe in narrative form alternative monitoring activities, unique solutions to problems, and challenges facing monitoring program. Include any collaboration with natural resource managers, other federal agencies, or research institutions. Provide graphics and/or tables of data analysis results presentations, photographs of monitoring and fire activities.

### **VOYA**

Two growing seasons after the prescribed fires during the summer or 2007 show little in the way of pine regeneration, though 2008 was a bumper seed crop...maybe next year. The 5-year post burn sampling was performed on the 1000 acre WFU fire of 2004. Seed origin seedlings are scarce in most areas. Both aforementioned treatments look to be an interesting comparison and will provide some insight into the differences between summer and spring burns.

As planned the monitor position was shared with resource management. In short, each was lent the other's seasonal, pay period for pay period, to assist them during their busy season. It worked quite well.

Due to a cool wet summer, only one unit was burned at VOYA. The unit contained plots for the Archeology/Fire research study.

**SACN**

As with last year much of the winter and spring was spend writing and revising burns plans for the spring burns. Four burns were completed last spring. One burn was a collaborative effort with a private land owner.

Monitoring has gone better this year getting most of the plot work done. The monitor from VOYA spent a week assisting with plot reads. Additional pre-burn plots need to be installed in numerous other units but have not been due to lack of time.