

# FIRE-BIRD: Habitat suitability model application tools for disturbance-associated woodpeckers

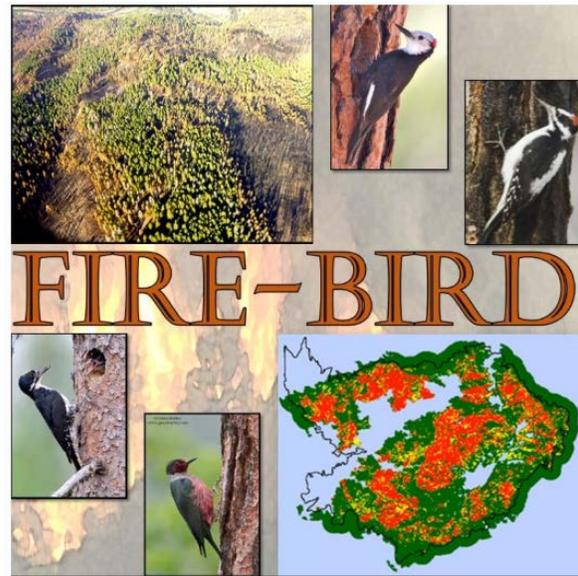
<https://www.fs.usda.gov/rmrs/tools/fire-bird-habitat-suitability-model-application-tools-disturbance-associated-woodpeckers>

## Abstract

FIRE-BIRD is an ArcGIS spatial tool for applying habitat suitability models to generate maps that inform forest management planning. This tool focuses on disturbance-associated woodpecker species of conservation concern.

## Overview and Applicability

The habitat suitability models implemented in FIRE-BIRD, and their respective output, can inform forest management for sensitive disturbance-associated woodpecker species. The output of the FIRE-BIRD tool identifies areas most likely to support these species. The output can be used to identify areas of high suitability which can be targeted for conservation (e.g., design criteria for post-fire salvage logging) and to identify areas of marginal suitability where habitat improvements could be conducted (e.g., dry forest restoration activities).



Tools are currently developed for black-backed (*Picoides arcticus*), Lewis's (*Melanerpes lewis*), and white-headed woodpecker (*Dryobates albolivartus*) in Inland Northwest burned forests; black-backed, white-headed, and hairy woodpecker (*D. villosus*) in Northern Sierra burned forests; and white-headed woodpecker in Inland Northwest unburned forests. The suite of species currently included makes this toolset best suited for postfire management and restoration treatments in dry mixed-conifer forests.

Additional species and forest conditions will continue to be added, broadening the scope of this toolset.

The General Technical Report (GTR) referenced/linked on this page describes the ecological basis for each tool and provides operational instructions and guidelines for applying habitat maps to inform planning (see Citation).

Feedback/Support (email): [SM.FS.firebird@usda.gov](mailto:SM.FS.firebird@usda.gov)

## Related tool (outside of RMRS)

Campos, Brent R., Steel, Zachary. [FIRE-BAT User Manual \(PDF download\)](https://zack-steel.com/files/FIRE-BAT_manual_v1.0.pdf).  
[https://zack-steel.com/files/FIRE-BAT\\_manual\\_v1.0.pdf](https://zack-steel.com/files/FIRE-BAT_manual_v1.0.pdf)

## Inputs The FIRE-BIRD tool

Input variables are tool-specific and are documented within the FIRE-BIRD GTR-391: [FIRE-BIRD: A GIS-based toolset for applying habitat suitability models to inform land management planning](#).

## Outputs

30-m resolution raster layers mapping the relative likelihood for species occurrence, i.e., habitat suitability indices (HSIs) with values ranging from 0 (low suitability) to 1 (high suitability).

## Requirements

USDA Forest Service Citrix Environment OR ArcGIS (ESRI)

AND

Access to the USFS internal network T-Drive  
(T:\FS\RD\RMRS\Science\WTE\Research\HSI\_applic\_tool\TOOLBOX) OR a  
downloaded copy of [FIRE-BIRD \(zip file - 146 MB\)](#).

## Restrictions and Limitations

FIRE-BIRD is open source and provided without charge. If you use FIRE-BIRD in your research, please cite the general technical report [FIRE-BIRD: A GIS-based toolset for applying habitat suitability models to inform land management planning](#) and use the citation below.

## Citation

Latif, Quresh S.; Saab, Victoria A.; Haas, Jessica R.; Dudley, Jonathan G. 2019. [FIRE-BIRD: A GIS-based toolset for applying habitat suitability models to inform land management planning](#). Gen. Tech. Rep. RMRS-GTR-391. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 74 p.

<https://www.fs.usda.gov/rmrs/publications/fire-bird-gis-based-toolset-applying-habitat-suitability-models-inform-land-management>

## Release Notes

[FIRE-BIRD v2.0](#) (zip file - 146 MB) is the most recent certified version (March 23, 2020).

## Addendum

[Lewis's Woodpecker Addendum \(03/16/2020\)](#) (PDF - 500 K) - [https://www.fs.fed.us/rm/pubs\\_series/rmrs/gtr/rmrs\\_gtr391\\_addendum.pdf](https://www.fs.fed.us/rm/pubs_series/rmrs/gtr/rmrs_gtr391_addendum.pdf)