LANDIS-II Age Cohort Statistics v1.0 Extension User Guide

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Last Revised: May 1, 2008

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1 Introduction

This document describes the **Age Cohort Statistics** extension for the LANDIS-II model. For information about the model and its core concepts, see the *LANDIS-II Conceptual Model Description.*

1.1 Acknowledgements

2 Age Cohort Statistics

This extension produces a variety of output maps that are specific to age cohorts. Biomass cohort data can be summarized via other extensions. This extension produces maps of values as indicated by the user.

2.1 Types of Statistics Available

The following statistics are available (abbreviation in parenthses):

Maximum (MAX)

Median (MED)

Average (AVG)

Standard Deviation (SD)

Richness (RICH) – the number of items.

Evenness (EVEN) – a measure of the evenness of the items, based on the Shannon index of diversity (H').

2.2 Species Age Statistics

The user can list which statistic(s) to calculate for individual species. Richness and evenness are not options for species age statistics.

2.3 Site Age Statistics

The chosen statistics are calculated based on *all species* present at a site..

2.4 Site and Species Statistics

To date, only the **Richness** (the number of species at each site) statistic is an option..

3 Input File

The input parameters for this extension are specified in one input file. This text file must comply with the general format requirements described in section 3.1 *Text Input Files* in the *LANDIS-II Model User Guide*.

3.1 LandisData

This parameter's value must be `"Age Cohort Stats"`.

3.2 Timestep

This parameter is the extension's timestep. Value: integer > 0. Units: years.

3.3 SpeciesAgeStats

3.3.1 MapNames

This file parameter is the template for the names of the age output maps. The parameter value must include the **three** variables "**species**", "**statistic**" and "**timestep**" to ensure that the maps have unique names (see section 3.1.8.1 *Variables* in the *LANDIS-II Model User Guide*).

3.3.2 Statistic List for Species

Each statistic (keywords: MAX, MIN, AVG, MED, SD) must be followed by a list list of one or more species for which the extension will create age statistic output maps. The species names must follow the parameter name on the same line.

3.4 SiteAgeStats

3.4.1 MapNames

This file parameter is the template for the names of the age output maps. The parameter value must include the **two** variables "**statistic**" and "**timestep**" to ensure that the maps have unique names (see section 3.1.8.1 *Variables* in the *LANDIS-II Model User Guide*).

3.4.2 Statistic List for Sites

Each statistic (keywords: MAX, MIN, AVG, MED, SD, RICH, EVEN) must be listed on a separate line.

3.5 SiteSpeciesStats

3.5.1 MapNames

This file parameter is the template for the names of the age output maps. The parameter value must include the **two** variables "**statistic**" and "**timestep**" to ensure that the maps have unique names (see section 3.1.8.1 *Variables* in the *LANDIS-II Model User Guide*).

3.5.2 Statistic List for Sites

Each statistic (keywords: RICH) must be listed on a separate line.

4 Example File

```
LandisData  "Output Cohort Stats"

Timestep    10

SpeciesAgeStats

MapNames  output/cohort-stats/{species}-{statistic}-
{timestep}.gis

MAX     querrubr pinustro << maximum age for each species

SiteAgeStats

MapNames    output/cohort-stats/AGE-{statistic}-{timestep}.gis

MAX           << maximum age across all species on site
MED           << median age across all species on site
SD            << standard deviation age for all spp on site
RICH          <<count of cohorts
EVEN          <<evenness

SiteSpeciesStats

MapNames    output/cohort-stats/SPP-{statistic}-{timestep}.gis

RICH                <<count of species
```