Model for *Pinus halepensis* Aragón (Spain)

Model

Phalepensis__aragon__v01

Model description

- Especie: *Pinus halepensis* Mill.
- Spanish Forest Inventory (SFI) code: 24
- Geographical area: Aragón
- Geographical area (administrative): Zaragoza, Huesca and Teruel

Model type

- Category: growth
- Model level: distance independent individual tree model
- Reproduction methods: seedling forest
- Stand structure: even-aged stands
- Species composition: monospecific stands
- Forest origin: natural stands (very high post-fire regeneration)

Model requirements and recommended use

- Initial inventory requirements: age and dominant height of the plot; expan and dbh of the trees. Slope of the plot is needed in order to calculate mushrooms variables
- Geographical area: Aragón, closer places and another places with similar characteristics (assuming differences)
- Stand type: monospecific stands
- Execution recommended time: 10 years executions (growth equation developed by using that criteria)
- Site Index is defined as top height at a base age of 60

Figure 1: *Pinus halepensis*

Figure 2: Detalles de *Pinus halepensis*

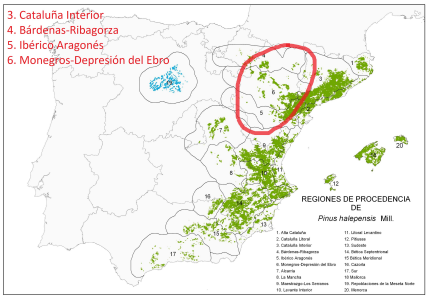


Figure 3: Regiones de procedencia de *Pinus halepensis* en España

Bibliography

Complete SIMANFOR model recommended citation):

SIMANFOR (2022). Individual tree growth model independent from distance for Aleppo pine (*Pinus halepensis*) in Aragón (Spain).

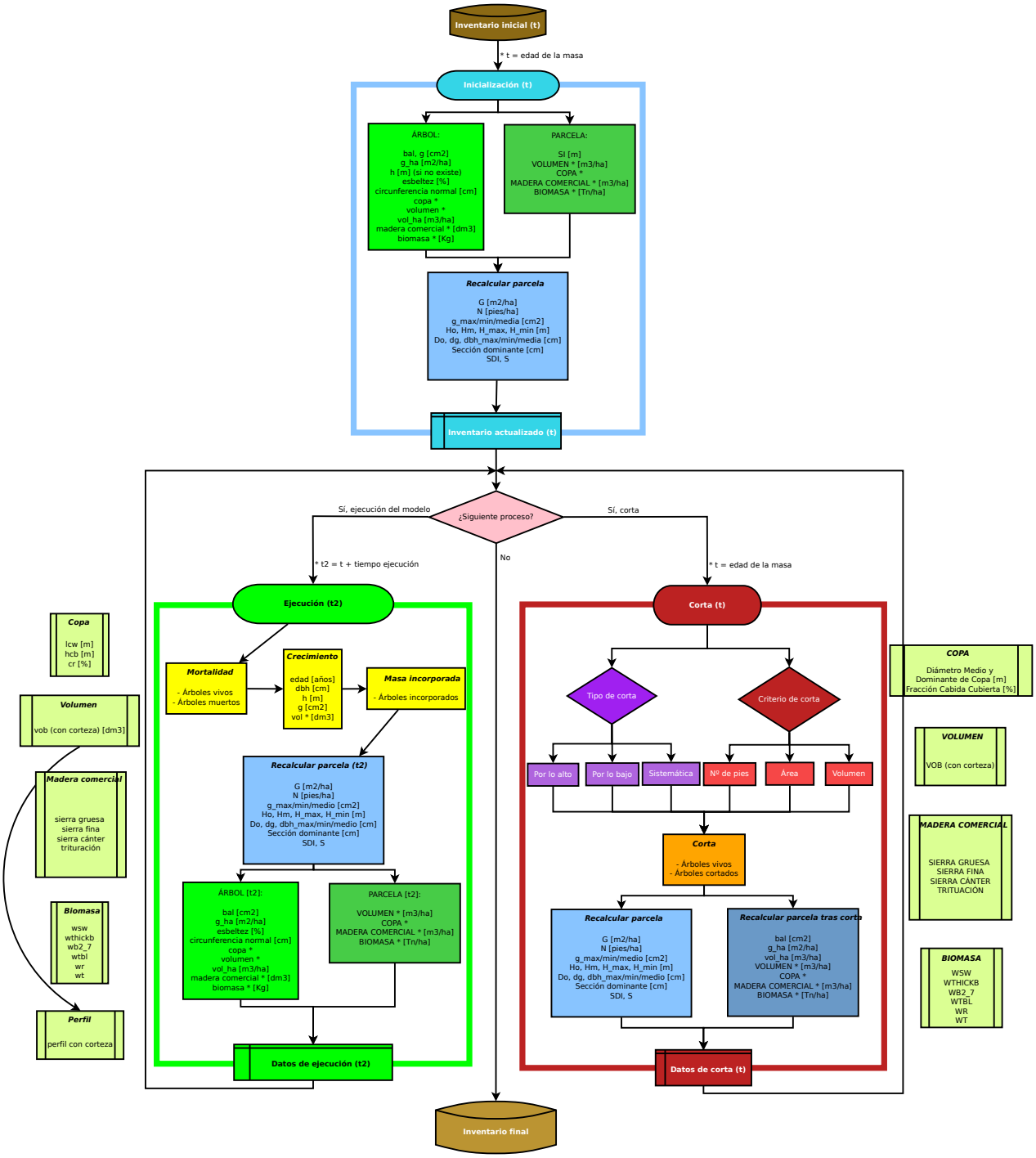
Model components:

- **Site Index equation**:
  Saldaña AMC (2010). Bases para la gestión de masas naturales de Pinus halepensis Mill. en el Valle del Ebro (Doctoral dissertation, Universidad Politécnica de Madrid)
  Rojo A, Saldaña, AM, Barrio-Anta M, Notivol-Paíno E, Gorgoso-Varela JJ (2017). Site index curves for natural Aleppo pine forests in the central Ebro valley (Spain)
- **Survival equation**:
  Equation obtained from PHRAGON_2017_v1.cs, a model of *Pinus halepensis* useful for the old SiManFor version, developed for Aragón by Föra Forest Techonlogies and Diputación General de Aragón
- **Diameter growth equation**:
  Equation obtained from PHRAGON_2017_v1.cs, a model of *Pinus halepensis* useful for the old SiManFor version, developed for Aragón by Föra Forest Techonlogies and Diputación General de Aragón
- **Ingrowth equation**:
  Trasobares A, Tomé M, Miina J (2004). Growth and yield model for Pinus halepensis Mill. in Catalonia, north-east Spain. Forest ecology and management, 203(1-3), 49-62
- **Ingrowth distribution**:
  By default
- **General calculations: bal, g, slenderness, normal circumference**:
  Standard equations
- **Generalized height-diameter equation**:
  Equation obtained from PHRAGON_2017_v1.cs, a model of *Pinus halepensis* useful for the old SiManFor version, developed for Aragón by Föra Forest Techonlogies and Diputación General de Aragón
- **Crown equations**:
  Equation obtained from PHRAGON_2017_v1.cs, a model of *Pinus halepensis* useful for the old SiManFor version, developed for Aragón by Föra Forest Techonlogies and Diputación General de Aragón
- **Taper equations over bark (volume)**:
  Equation obtained from PHRAGON_2017_v1.cs, a model of *Pinus halepensis* useful for the old SiManFor version, developed for Aragón by Föra Forest Techonlogies and Diputación General de Aragón
- **Biomass equations**:
  Ruiz-Peinado R, del Rio M, Montero G (2011). New models for estimating the carbon sink capacity of Spanish softwood species. Forest Systems, 20(1), 176-188
- **Technological wood uses information**:
  Rodríguez F (2009). Cuantificación de productos forestales en la planificación forestal: Análisis de casos con cubiFOR. In Congresos Forestales
- **Value for Reineke Index equation**:
  Aguirre A, Condés S, del Río M (2017) Variación de las líneas de máxima densidad de las principales especies de pino a lo largo del gradiente estacional de la Península Ibérica. 7 Congreso Forestal Español

Figures:

- **Figure 1:** extracted from Accurimbono with license CC BY-SA 3.0

- **Figure 2:** extracted from The New York Public Library
- **Figure 3:** extracted from MAPA


Inventario inicial (t)
* t = edad de la masa
Inicialización (t)
ÁRBOL:
bal, g [cm2]
g_ha [m2/ha]
h [m] (si no existe)
esbeltez [%]
circunferencia normal [cm]
copa *
volumen *
vol_ha [m3/ha]
madera comercial * [dm3]
biomasa * [Kg]
PARCELA:
SI [m]
VOLUMEN * [m3/ha]
COPA *
MADERA COMERCIAL * [m3/ha]
BIOMASA * [Tn/ha]
Recalcular parcela
G [m2/ha]
N [pies/ha]
g_max/min/media [cm2]
Ho, Hm, H_max, H_min [m]
Do, dg, dbh_max/min/media [cm]
Sección dominante [cm]
SDI, S
Inventario actualizado (t)
¿Siguiente proceso?
Sí, ejecución del modelo
Sí, corta
No
* t2 = t + tiempo ejecución
* t = edad de la masa
Ejecución (t2)
Mortalidad
- Árboles vivos
- Árboles muertos
Crecimiento
edad [años]
dbh [cm]
h [m]
g [cm2]
vol * [dm3]
Masa incorporada
- Árboles incorporados
Recalcular parcela (t2)
G [m2/ha]
N [pies/ha]
g_max/min/medio [cm2]
Ho, Hm, H_max, H_min [m]
Do, dg, dbh_max/min/medio [cm]
Sección dominante [cm]
SDI, S
ÁRBOL [t2]:
bal [cm2]
g_ha [m2/ha]
esbeltez [%]
circunferencia normal [cm]
copa *
volumen *
vol_ha [m3/ha]
madera comercial * [dm3]
biomasa * [Kg]
PARCELA [t2]:
VOLUMEN * [m3/ha]
COPA *
MADERA COMERCIAL * [m3/ha]
BIOMASA * [Tn/ha]
Datos de ejecución (t2)
Corta (t)
Tipo de corta
Criterio de corta
Por lo alto
Por lo bajo
Sistemática
Nº de pies
Área
Volumen
Corta
- Árboles vivos
- Arboles cortados
Recalcular parcela
G [m2/ha]
N [pies/ha]
g_max/min/medio [cm2]
Ho, Hm, H_max, H_min [m]
Do, dg, dbh_max/min/medio [cm]
Sección dominante [cm]
SDI, S
Recalcular parcela tras corta
bal [cm2]
g_ha [m2/ha]
vol_ha [m3/ha]
VOLUMEN * [m3/ha]
COPA *
MADERA COMERCIAL * [m3/ha]
BIOMASA * [Tn/ha]
Datos de corta (t)
Inventario final
Copa
lcw [m]
hcb [m]
cr [%]
Volumen
vob (con corteza) [dm3]
Madera comercial
sierra gruesa
sierra fina
sierra cánter
trituración
Biomasa
wsw
wthickb
wb2_7
wtbl
wr
wt
Perfil
perfil con corteza
COPA
Diámetro Medio y
Dominante de Copa [m]
Fracción Cabida Cubierta [%]
VOLUMEN
VOB (con corteza)
MADERA COMERCIAL
SIERRA GRUESA
SIERRA FINA
SIERRA CÁNTER
TRITUACIÓN
BIOMASA
WSW
WTHICKB
WB2_7
WTBL
WR
WT

Contacts

Sustainable Forest Management Research Institute UVa-INIA, iuFOR (University of Valladolid-INIA)
Dendrochronology and Forest Modeling Department

Higher Technical School of Agricultural Engineering of Palencia - Avd. Madrid 57; 34004 - Palencia (Spain)
Vegetal Production and Forest Resources Department

Aitor Vázquez Veloso
Tel.: +34 979 108 430
e-mail: aitor.vazquez.veloso@uva.es
more information: `http://sostenible.palencia.uva.es/users/aitorvazquez`

Cristóbal Ordóñez
Tel.: +34 979 108 417
e-mail: a_cristo@pvs.uva.es
more information: `http://sostenible.palencia.uva.es/users/acristo`

Felipe Bravo Oviedo
Tel.: +34 979 108 417
e-mail: fbravo@pvs.uva.es
more information: `http://sostenible.palencia.uva.es/users/fbravo`

Interest Links

SIMANFOR - Support system for simulating Sustainable Forest Management Alternatives. Accessed 11 May 2021, in `https://www.simanfor.es/`

iuFOR - Sustainable Forest Management Research Institute UVa-INIA. Accessed 11 May 2021, in `http://sostenible.palencia.uva.es/`

ETSIIAA Palencia - Higher Technical School of Agricultural Engineering of Palencia. Accessed 11 May 2021, in `http://etsiiaa.uva.es/`

UVa - University of Valladolid. Accessed 11 May 2021, in `https://www.uva.es`