Model for *Pinus sylvestris* stands Ukraine

Model

Psylvestris_stand__Ukraine__v01.py

Model description

- Specie: *Pinus sylvestris* L.
- Spanish Forest Inventory (SFI) code: 21
- Geographical area: Ukraine

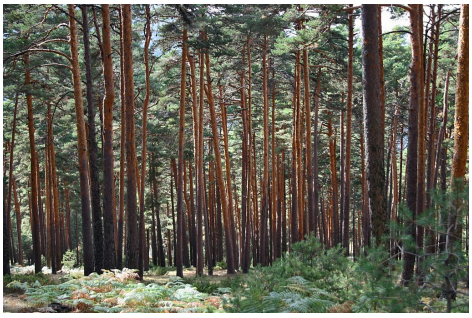

Figure 1: *Pinus sylvestris* stand

Model type

- Category: stand growth
- Model level: stand
- Reproduction methods: seedling forest
- Stand structure: even-aged stands
- Species composition: monospecific stands
- Forest origin: -

Figure 2: Details of *Pinus sylvestris*

Model requirements and recommended use

- Initial inventory requirements: age, mean height and density of the plot
- Geographical area: Ukraine, closer places and another places with similar characteristics (assuming differences)
- Stand type: monospecific stands
- Execution recommended time: 5 years executions (survival and growth equations developed by using that criteria)
- Site Index is defined as top height at a base age of 100 years

Figure 3: Ukraine location in Europe

Bibliography

Complete SIMANFOR model recommended citation):

SIMANFOR (2022). Stand growth model for scots pine (*Pinus sylvestris*) in Ukraine.

Model components:

- **Calculations by using tree data** (just in cases when that information is not available at the initial inventory):
  Density and Mean Height
- **Site Index equation**:
  Kagank (2013). Adaptac sistemi prognozu produktivnost sosnovih derevostanv do umov ntensivnogo vedenn lsovogo gospodarstva. In Naukov prac Lsvničo akadem nauk Ukrani (11th ed., pp. 151-156)
- **Dominant Height Growth equation**:
  Kagank (2013). Adaptac sistemi prognozu produktivnost sosnovih derevostanv do umov ntensivnogo vedenn lsovogo gospodarstva. In Naukov prac Lsvničo akadem nauk Ukrani (11th ed., pp. 151-156)
- **Survival equation**:
  Kagank , Žmurko S (2005). Dynamic of basic taxation characteristics of Jack pine forest in dry land. In Zbrnik naukovo-tehnčnih prac (15th ed., pp. 44-48)
- **Basal Area and Basal Area Growth equation**:
  Standard equation adapted by iuFOR
- **Volume equation**:
  PROGNOZ POTENCNO PRODUKTIVNOST SOSNOVIH TA BUKOVIH DEREVOSTANV. (2006), 39-45
- **Mean Height and Mean Diameter equation**:
  Lakida P, Terentv A, Aleksk (2020). In TEOR PRAKTIKA PRIRODOKORISTUVANN
- **Quadratic Mean Diameter, Hart and Reineke Index equations**:
  Standard equations
- **Harvest equations**:
  Harvest equations developed by using equations mentioned before.

Figures:

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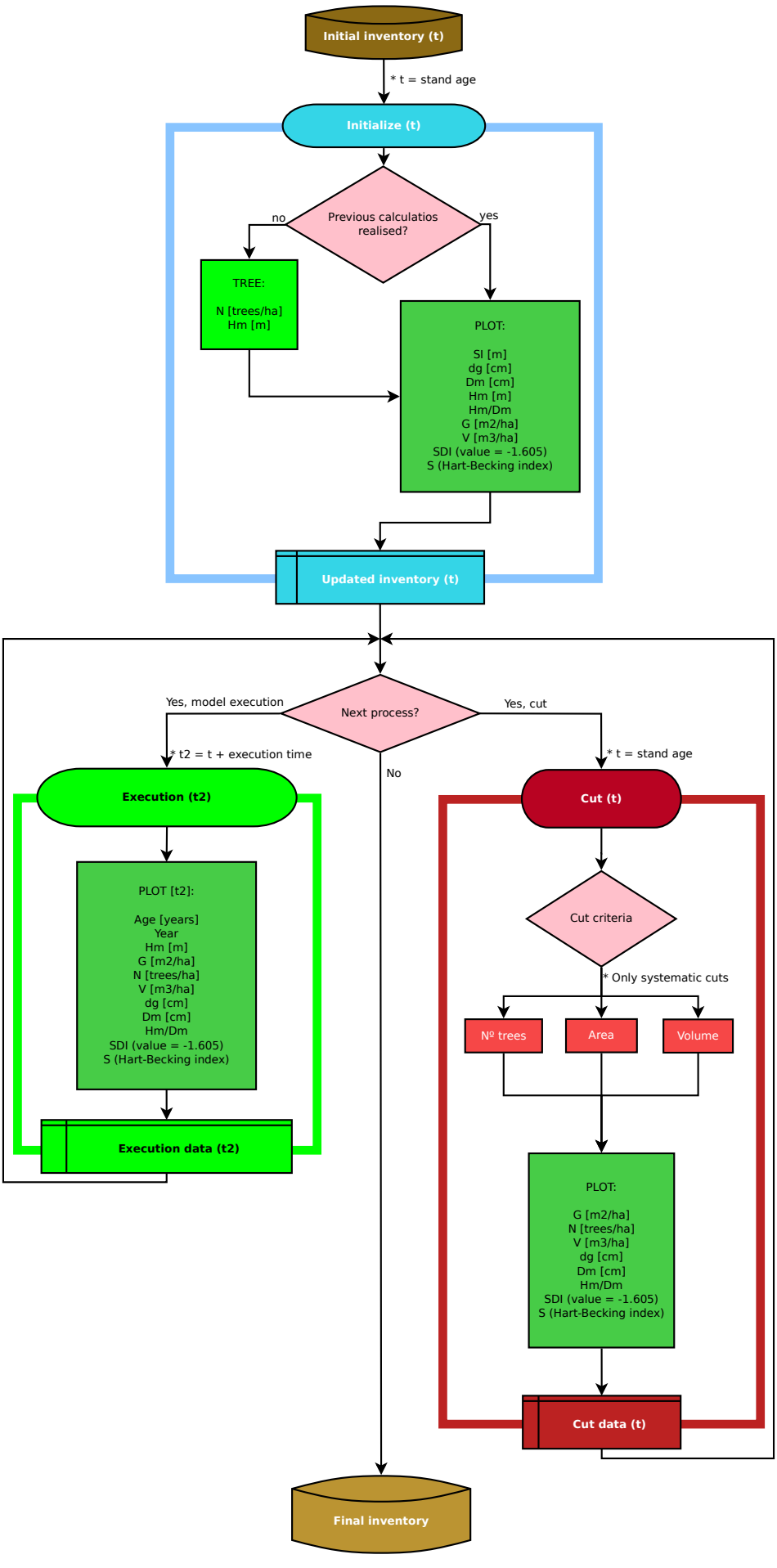
Initial inventory (t)
* t = stand age
Initialize (t)
Previous calculatios realised?
no
yes
TREE:
N [trees/ha]
Hm [m]
PLOT:
SI [m]
dg [cm]
Dm [cm]
Hm [m]
Hm/Dm
G [m2/ha]
V [m3/ha]
SDI (value = -1.605)
S (Hart-Becking index)
Updated inventory (t)
Next process?
Yes, model execution
Yes, cut
No
* t2 = t + execution time
* t = stand age
Execution (t2)
PLOT [t2]:
Age [years]
Year
Hm [m]
G [m2/ha]
N [trees/ha]
V [m3/ha]
dg [cm]
Dm [cm]
Hm/Dm
SDI (value = -1.605)
S (Hart-Becking index)
Execution data (t2)
Cut (t)
Cut criteria
* Only systematic cuts
Nº trees
Area
Volume
PLOT:
G [m2/ha]
N [trees/ha]
V [m3/ha]
dg [cm]
Dm [cm]
Hm/Dm
SDI (value = -1.605)
S (Hart-Becking index)
Cut data (t)
Final inventory

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`