

**BLACK CHERRY - AN INVASIVE SPECIES IN STANDS OF THE
MANAGEMENT UNIT I SÎNIOB, SĂCUIENI FOREST DISTRICT, COUNTY
FOREST ADMINISTRATION BIHOR**

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Abstract

*Introducing exotic species productive in national forest fund a long time had been a goal for the Romanian forestry. Realization special forestry crops led to the acclimatization of introduced species and that their naturalization, some of these species becoming real competition for native species in some cases, even eliminating the main species compositions based regeneration. *Prunus serotina* Ehrh. (*Padus serotina* (Ehrh.) Agadh.) (black cherry, late sweet cherry) was inserted into the frame stands Săcuieni Forest District, County Forest Administration of Bihor in default and I Sîniob management unit with over three decades ago. The purpose of the studies will present a case series of *Prunus serotina* issues in relation to the works and actions required to achieve for you have a real control of this species in the stands studied.*

Key words: *Prunus serotina*, exotic species, native species, invasive species, acclimatization, naturalization, stands, forest operations.

INTRODUCTION

Prunus serotina it is original of eastern North America and was introduced in our forestry crops, such as those on the sands of Foeni-Carei, or from various conditions (mild to heavy soils) from Săcuieni (Stănescu V., Șofletea N., Popescu O. 1994).

Preference for deep soils rich in humus, but was adaptable to the poor soils, being apt for crops in degraded lands. Resist frost and drought, but most avoid soils with excess moisture.

It is quite resistant to shading, behaving well in the lower storey, as in the black locust stands from Foeni-Carei, or in stands of red oak and black walnut to Săcuieni (Stănescu V., Șofletea N., Popescu O. 1994).

Therefore, following the process of acclimatization and naturalization that this species vegetate in very good conditions every year fructificate and disseminated process is done very easily become invasive species in natural regeneration of cvercinee in stands of locust treated in coppice forest, even colonize agricultural land in many situations.

In the management unit I Sîniob, the proportion of participation of *Prunus serotina* in the stands is 4.4% according to forest management plan.

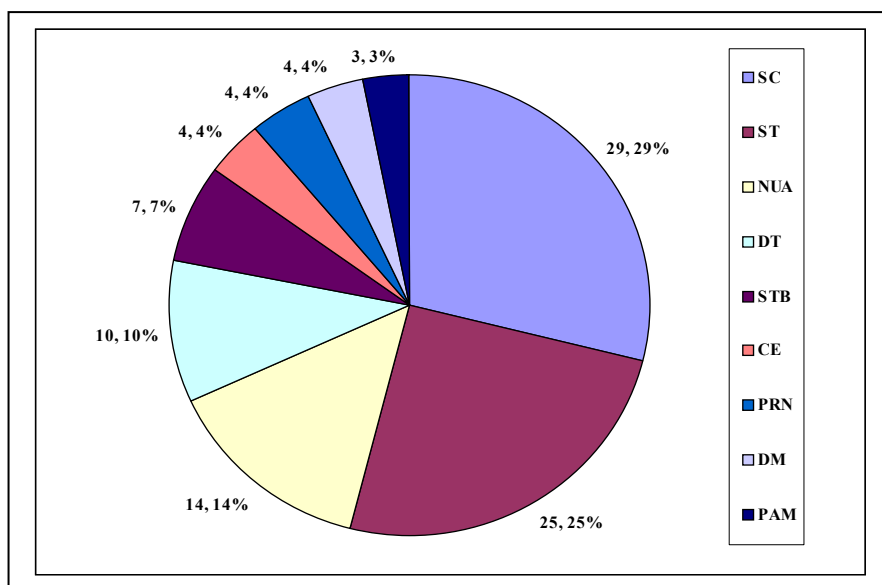


Fig. 1. Structure of growing stock by species in the management unit (U.P.) I Siniob

MATERIAL AND METHODS

The case study was realized in the stands of compartments 47B, 55 and 62A, in stands that have been run to the improvement cutting and in the stand of u.a.46A and it is running with regeneration cuttings, and respectively with cultivations of the forest crop.

For the study case were used as research methods route observation, observation in stationary, inventory statistic and mathematics, simulation, recording on digital media.

For data processing tool was used EXCEL, and for quantitative evaluation, qualitative and value FOND program.

Table 1

Elements regarding stands of the case study were done
(Amenajamentul U.P. I Siniob 1998)

u.a.	S (ha)	T (years)	Site class	Stand composition	
				Target	To management plan
0	1	2	3	4	5
47B	2.1	14	III	4STR 2PRN 2CE 2PAM	4STR 2PRN 2CE 2PAM
55	10	32	III	6PIN4PRN	7PIN 2PIS1PRN
62A	6.7	27	III	7ST 2CA 1PRN PRP	5ST 3PRN 2CA
46A	14.4	87	II	10CE	10CE

RESULTS AND DISCUSSION

After processing land data were obtained a number of growth results are presented below.

Table 2

Track of the number of trees, basal area and volume on categories of diameter and species per hectare in the stand of u.a. 47B

D(cm)	N(buc·ha ⁻¹)							Stand
	Str	Sc	Nun	Prn	Ce	Cas	Go	
0	1	2	3	4	5	6	7	8
6	1391	6	5	6	4	5	5	1422
8	462	5	0	5	6	5	4	487
10	425	7	6	0	4	4	4	450
12	193	5	8	5	2	0	0	213
14	117	0	3	0	0	0	0	120
16	32	0	0	0	0	0	0	32
18	6	0	0	0	0	0	0	6
20	1	0	0	0	0	0	0	1
Total	2627	23	22	16	16	14	13	2731
D(cm)	G(m ² ·ha ⁻¹)							Stand
	Str	Sc	Nun	Prn	Ce	Cas	Go	
0	1	2	3	4	5	6	7	8
6	3,93	0,02	0,01	0,02	0,01	0,01	0,01	4,02
8	2,32	0,03	0,00	0,03	0,03	0,03	0,02	2,45
10	3,34	0,05	0,05	0,00	0,03	0,03	0,03	3,53
12	2,18	0,06	0,09	0,06	0,02	0,00	0,00	2,41
14	1,80	0,00	0,05	0,00	0,00	0,00	0,00	1,85
16	0,64	0,00	0,00	0,00	0,00	0,00	0,00	0,64
18	0,15	0,00	0,00	0,00	0,00	0,00	0,00	0,15
20	0,03	0,00	0,00	0,00	0,00	0,00	0,00	0,03
Total	14,40	0,15	0,20	0,10	0,10	0,07	0,07	15,09
D(cm)	V(m ³ ·ha ⁻¹)							Stand
	Str	Sc	Nun	Prn	Ce	Cas	Go	
0	1	2	3	4	5	6	7	8
6	16,692	0,072	0,060	0,066	0,048	0,070	0,070	17,078
8	11,550	0,120	0,000	0,115	0,144	0,140	0,112	12,181
10	18,275	0,280	0,264	0,000	0,164	0,192	0,192	19,367
12	13,124	0,315	0,544	0,310	0,126	0,000	0,000	14,419
14	11,232	0,000	0,294	0,000	0,000	0,000	0,000	11,526
16	4,128	0,000	0,000	0,000	0,000	0,000	0,000	4,128
18	1,002	0,000	0,000	0,000	0,000	0,000	0,000	1,002
20	0,209	0,000	0,000	0,000	0,000	0,000	0,000	0,209
Total	76,212	0,787	1,162	0,491	0,482	0,402	0,374	79,910

Table 3

Track of the number of trees, basal area and volume on categories of diameter and species per hectare in the stand of u.a. 55

D(cm)	N(buc·ha ⁻¹)						Stand
	Pin	Prn	Pis	Ce	Sc	Ca	
0	1	2	3	4	5	6	7
8	0	13	0	0	0	0	13
10	0	0	0	0	7	7	14
12	27	60	0	7	0	0	94
14	74	34	7	0	0	0	115
16	67	40	0	0	0	0	107
18	133	107	7	0	0	0	247
20	100	81	7	0	0	0	188
22	100	40	13	0	0	0	153
24	100	27	7	7	0	0	141
26	47	7	7	0	0	0	61
28	33	7	7	0	0	0	47
30	14	0	0	0	0	0	14
32	0	0	13	0	0	0	13
34	0	0	0	0	0	0	0
36	7	0	0	0	0	0	7
Total	702	416	68	14	7	7	1214
D(cm)	G(m ² ·ha ⁻¹)						Stand
	Pin	Prn	Pis	Ce	Sc	Ca	
8	0,00	0,07	0,00	0,00	0,00	0,00	0,07
10	0,00	0,00	0,00	0,00	0,05	0,05	0,11
12	0,31	0,68	0,00	0,08	0,00	0,00	1,06
14	1,14	0,52	0,11	0,00	0,00	0,00	1,77
16	1,35	0,80	0,00	0,00	0,00	0,00	2,15
18	3,38	2,72	0,18	0,00	0,00	0,00	6,29
20	3,14	2,54	0,22	0,00	0,00	0,00	5,91
22	3,80	1,52	0,49	0,00	0,00	0,00	5,82
24	4,52	1,22	0,32	0,32	0,00	0,00	6,38
26	2,50	0,37	0,37	0,00	0,00	0,00	3,24
28	2,03	0,43	0,43	0,00	0,00	0,00	2,89
30	0,99	0,00	0,00	0,00	0,00	0,00	0,99
32	0,00	0,00	1,05	0,00	0,00	0,00	1,05
34	0,00	0,00	0,00	0,00	0,00	0,00	0,00
36	0,71	0,00	0,00	0,00	0,00	0,00	0,71
Total	23,87	10,88	3,16	0,40	0,05	0,05	38,43
D(cm)	V(m ³ ·ha ⁻¹)						Stand
	Pin	Prn	Pis	Ce	Sc	Ca	
8	0,000	0,299	0,000	0,000	0,000	0,000	0,299
10	0,000	0,000	0,000	0,000	0,294	0,343	0,637
12	1,674	3,640	0,000	0,350	0,000	0,000	5,664
14	6,808	3,030	0,504	0,000	0,000	0,000	10,342
16	8,576	5,000	0,000	0,000	0,000	0,000	13,576
18	22,876	17,655	0,952	0,000	0,000	0,000	41,483
20	22,100	17,091	1,239	0,000	0,000	0,000	40,430
22	27,600	10,480	2,899	0,000	0,000	0,000	40,979
24	33,600	8,613	1,918	1,911	0,000	0,000	46,042
26	18,894	2,660	2,317	0,000	0,000	0,000	23,871
28	15,609	3,122	2,723	0,000	0,000	0,000	21,454
30	7,686	0,000	0,000	0,000	0,000	0,000	7,686
32	0,000	0,000	6,747	0,000	0,000	0,000	6,747
34	0,000	0,000	0,000	0,000	0,000	0,000	0,000
36	5,656	0,000	0,000	0,000	0,000	0,000	5,656
Total	171,079	71,590	19,299	2,261	0,294	0,343	264,866

Table 4

Track of the number of trees, basal area and volume on categories of diameter and species per hectare in the stand of u.a. 62A

D(cm)	N(buc·ha ⁻¹)						Stand
	Ce	Prn	Ca	Str	Sc	Fr	
0	1	2	3	4	5	6	7
8	0	0	8	0	0	8	16
10	17	0	50	0	0	0	67
12	58	25	8	0	8	0	99
14	75	8	8	0	8	8	107
16	133	25	16	0	0	0	174
18	166	8	0	16	0	0	190
20	141	17	0	8	16	0	182
22	41	17	0	0	0	8	66
24	41	41	0	0	0	0	82
26	33	16	0	8	8	0	65
28	41	16	0	16	0	0	73
30	25	0	0	0	0	0	25
32	0	0	0	0	0	0	0
34	0	0	0	8	0	0	8
36	8	0	0	0	0	0	8
Total	779	173	90	56	40	24	1162
D(cm)	G(m ² ·ha ⁻¹)						Stand
	Ce	Prn	Ca	Str	Sc	Fr	
8	0,00	0,00	0,04	0,00	0,00	0,04	0,08
10	0,13	0,00	0,39	0,00	0,00	0,00	0,53
12	0,66	0,28	0,09	0,00	0,09	0,00	1,12
14	1,15	0,12	0,12	0,00	0,12	0,12	1,65
16	2,67	0,50	0,32	0,00	0,00	0,00	3,50
18	4,22	0,20	0,00	0,41	0,00	0,00	4,83
20	4,43	0,53	0,00	0,25	0,50	0,00	5,72
22	1,56	0,65	0,00	0,00	0,00	0,30	2,51
24	1,85	1,85	0,00	0,00	0,00	0,00	3,71
26	1,75	0,85	0,00	0,42	0,42	0,00	3,45
28	2,52	1,01	0,00	0,99	0,00	0,00	4,52
30	1,77	0,00	0,00	0,00	0,00	0,00	1,77
32	0,00	0,00	0,00	0,00	0,00	0,00	0,00
34	0,00	0,00	0,00	0,73	0,00	0,00	0,73
36	0,81	0,00	0,00	0,00	0,00	0,00	0,81
Total	23,54	6,00	0,97	2,79	1,14	0,47	34,92
D(cm)	V(m ³ ·ha ⁻¹)						Stand
	Ce	Prn	Ca	Str	Sc	Fr	
8	0,000	0,000	0,208	0,000	0,000	0,200	0,408
10	0,663	0,000	2,250	0,000	0,000	0,000	2,913
12	3,538	1,700	0,552	0,000	0,488	0,000	6,278
14	6,750	0,800	0,800	0,000	0,712	0,752	9,814
16	16,625	3,500	2,176	0,000	0,000	0,000	22,301
18	27,556	1,504	0,000	2,960	0,000	0,000	32,020
20	29,892	4,131	0,000	1,928	3,376	0,000	39,327
22	10,824	5,185	0,000	0,000	0,000	2,248	18,257
24	13,161	15,252	0,000	0,000	0,000	0,000	28,413
26	12,639	7,120	0,000	3,632	3,048	0,000	26,439
28	18,450	8,559	0,000	8,592	0,000	0,000	35,601
30	13,050	0,000	0,000	0,000	0,000	0,000	13,050
32	0,000	0,000	0,000	0,000	0,000	0,000	0,000
34	0,000	0,000	0,000	6,520	0,000	0,000	6,520
36	6,144	0,000	0,000	0,000	0,000	0,000	6,144
Total	159,292	47,751	5,986	23,632	7,624	3,200	247,485

In the stands run by regeneration cuttings, *Prunus serotina* is found in forest crops (natural regeneration) with a high frequency (15-25% of the total inventoried copies), representing a considerable size and exceptional vegetation state.

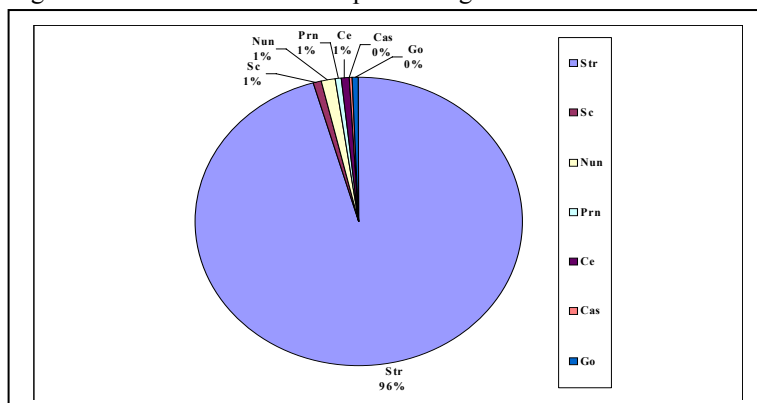


Fig. 2. Composition of the base area, per hectare in the stand of u.a. 47B

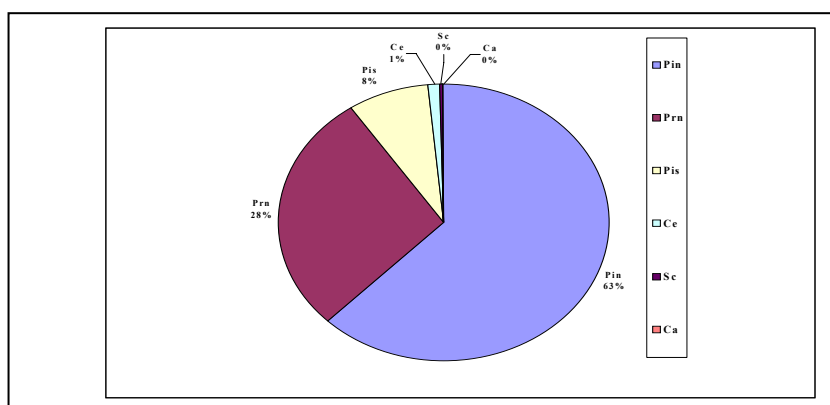


Fig. 3. Composition of the base area, per hectare in the stand of u.a. 55

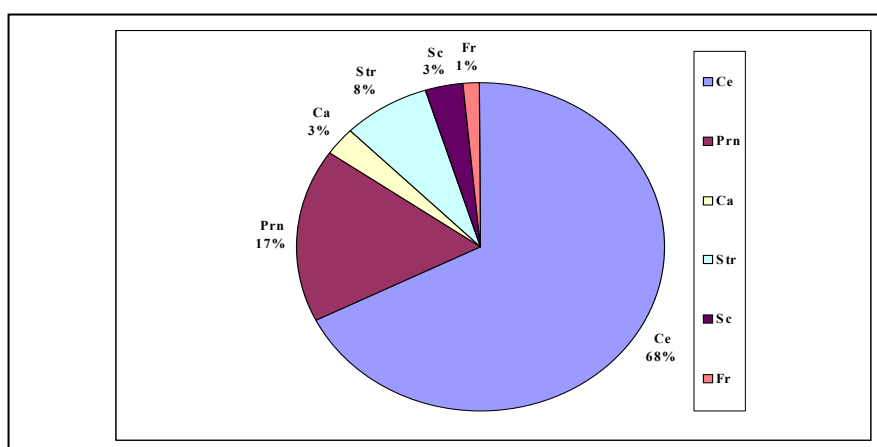


Fig. 4. Composition of the base area, per hectare in the stand of u.a. 62A

In the stands run with improvement cutting (releases, cleaning, thinning) the proportion of participation of *Prunus serotina* variate from 1% in the stand of 47B, 17% in the stand of the u.a. 62A and respectively 28% in the stand of the u.a. 55.



Fig. 5. Positioning copies of black cherry in stand moisture

Analyzing the spatial location of the copies of *Prunus serotina* observed this species tend to be positioned coenotic in the upper moisture of stand, which undoubtedly influences the structure of that stand.

The presents of species *Prunus serotina* in natural regenerations from the studied stands is due to a dissemination made especially for birds and of course the annual fructification and abundance of this species.

I also found the presence of copies of *Prunus serotina* on various land located near the forest fund, which is due to a lifting capacity of colonization of different habitats by this species. As a result, this species is so invasive in forest fund and in the lands that are not classified as forest usage.

CONCLUSIONS

The introduction of *Prunus serotina* species with locust (*Robinia pseudacacia* L.) in Săcuieni Forest District in extreme site (on sandy soils) was an effective method to stabilize them at that time.

With acclimatization and naturalization of these species, there were some problems related to rational management of forest stands obtained *Prunus serotina* tending to invasion and eliminate the other species if not properly and timely interferes with proper works and that phase stage of development.

It is recommended that a proper proportion of the species *Prunus serotina* in forest stands, in accordance with the recommendations of forest management plan and respectively with technical rules in force, something which is possible since the implementation of close crop, through proper management of forest crops.

It will take into account the fact that the stands are running with regeneration cuttings, to be regenerated under the massive with species related fundamental natural type of forest (mainly oak) and as secondary species mixing (helpful), to be used those already installed in a natural way, respectively *Prunus serotina*, *Prunus avium* L. (*Cerasus avium* (L.) Moench), *Acer campestre* L., *Carpinus betulus* L.

Given that *Prunus serotina* wood properties are similar to those of birdcherry tree wood, it is recommended the management copies phenotypic superior black cherry in order

to obtain optimum use of their appropriate size, resulting wood assortment round of high quality (veneer, saw timber, etc.).

To get higher quality parts of the black cherry species (Fig. 6) it is recommended the proper negative selection and individual selection (positive selection) running stands at the improvement cutting. In contrary case copies can be affected by a number of defects of form and structure that can limit their high valuable (Fig. 6).



a). Copies of quality superior



b). Copies affected by the forking

Fig. 6. Trees of the species black cherry in the stand from u.a. 55 (a) and respectively u.a. 62A (b)

Black cherry fruits can be successfully used in food industry, pharmaceutical industry, to obtain dyes, etc., which may lead to a higher valuable of this species artificially introduced in the national forest fund.

The wood material extracted with applying the improvement cutting is valuable locally for firewood.

You should not overlook the fact that if this species is out of control, becomes invasive forest fund both inside and outside it, with various categories of land use, implying that financial technical and substantial efforts in order to return to a normal situation.

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