CNVP

Building a Greener Economic Environment

Monitoring the Condition of Planted Seedlings under the "Integrated Forest Management (IFM) along the Transboundary Drin River Basin" Project

Monitoring Expert

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July 2025

1-ANA E MALIT SITE

Management Unit: Bushat- Ana e Malit (Tarabosh)

Area planted: 11 ha

Aim of the project: Restoration of the degraded forest land using species like: Holm oak (*Q.ilex*); Macedonian oak (*Q.trojana*); Elm (*U.campestre*); Aleppo pine (*P.halepensis*); Mediterranean cypress (*C. sempervirens*); olive (O.europaea); Bay laurel (*L.nobilis*).

Planting activities in this area began in December 2023, followed by replanting in September 2024 to replace approximately 20% of the seedlings that had dried out during the initial establishment phase. The number of replanted seedlings was around 2,426. In accordance with the project framework, the Regional Forest Federation of Shkodër carried out maintenance services, which included weeding and irrigation. Irrigation was conducted under challenging conditions, as water had to be transported by pack animals to the interior of the planted plots during the hot summer months of 2024. In June 2025, a monitoring assessment of the seedling condition and an evaluation of the survival rate were conducted in the area. For this purpose, rectangular sample plots of 500 m² were established, covering 3% of the total planted area. In total, six sample plots of 500 m² each were surveyed. As a result, the monitored area represented 2.7% of the total planting site.

$$P_{\%} = \frac{3000}{110\,000} \cdot 100 = 2.7\%$$

Within each sample plot, seedling counting was conducted of both live and dead seedlings, categorized by tree species. Subsequently, the survival rate was calculated for each individual sample plot. The monitoring results by sample plot are presented in the table below.

Table 1. Results of seedling monitoring within sample plots

No	Coordinates		Monitoring area (m^2)	Number of seedlings within sample plot	Number of dead seedlings	Mortality Rate (%)	Survival Rate (%)
	N	E					
1	42° 1'54.71"	19°27'29.95"	500	63 *Q.ilex*	8	12%	88
				34 *P.halepensis*	4		
2	42º 1'55.67"	19º 27' 30.8"	500	135 *P.halepensis*	15	10%	90

				38 *Q.ilex*	2		
				12 *C.sempervirens*	1		
3	42º 1' 56.32"	19º 27' 30.9"	500	91 P.halepensis	11	12%	88
4	42º 1' 58.8"	19º 27' 32.6"	500	204 *L.nobilis*	15	7%	93
5	42º 1' 57.5"	19º 27' 32.6"	500	132 *C. sempervirens*	4	3%	97
				18 *Q.ilex*	1		
6	42º 2' 0.6"	19º 27' 33.4"	500	145 *Q.ilex*	8	9%	91
				36 *Q.pubescens*	5		
				54 *P.halepensis*	8		

From Table 1, it can be observed that the seedling mortality rate within the sample plots ranges from 3% to 12%, with an average value of 9%. During the monitoring process, it was noted that some seedlings were completely dried, while others were significantly yellowed and approaching critical wilting. These findings indicate an urgent need for intervention, particularly given the anticipated high temperatures in the coming period.

Figure 1.Status of the seedlings within planted area in Ana e Malit

Recommendations for Intervention Measures:

Given the observed seedling stress and the expected rise in temperatures, immediate and targeted actions are necessary to improve seedling survival and ensure the long-term success of the reforestation efforts. Recommended interventions include:

1. **Supplemental Irrigation**: Increase the frequency and volume of irrigation during peak summer months, especially for plots with high mortality or visibly stressed seedlings.
2. **Shading Structures**: In critical zones, temporary shading (e.g., shade nets) can help reduce heat stress on the most vulnerable seedlings.
3. **Soil Amendments**: In areas where soil fertility or structure may be contributing to poor seedling establishment, consider adding compost or other organic matter.
4. **Weed removal** around the seedlings within a radius of approximately 30 cm.
5. **Follow-up Monitoring**: Conduct monthly monitoring throughout the summer to assess the effectiveness of interventions and allow for adaptive management.

2-FAST-GROWING TREE PLANTATION IN VAU DEJES MUNICIPALITY

Management Unit: Drin-Gjader-Kir

Forest parcel: 7a

Area planted: 4 ha

Species planted: Poplar with seedlings and willow with cuttings.

At the Vau i Dejës site, the planted area covers 2 hectares, and planting was carried out with poplar seedlings in March 2024 and later in November 2024. The total number of poplar seedlings planted is 1,143, following a 3.5 x 3.5meter spacing scheme. In March 2025, replanting was conducted on 1 hectare of land to replace approximately 20% of the dried poplar seedlings.

During field observation, a clear distinction was noted between the seedlings planted in March 2025, which appear to be the most vulnerable to the high summer temperatures of 2025. Additionally, willow seedlings were planted in this area using cuttings. Irrigation of the poplar seedlings in this area was carried out in August 2024, and monitoring showed a mortality rate of less than 10%. However, this rate is expected to increase after the summer months of this year if weeding and irrigation measures are not implemented.

To mitigate the effects of heat stress and drought on newly planted and vulnerable seedlings, the following actions are recommended:

1. **Timely Weeding (Soil Cultivation):**

- Perform the first round of weeding before the summer drought sets in (early July).
- A second round should follow summer rainfall events, or if rainfall is absent, by mid-August at the latest.
- Due to the soil's clay content and the likelihood of hard crust formation, a third round of weeding may be necessary in late August or early September.

2. **Targeted Irrigation:**
    - At least two irrigation cycles should be scheduled: one in July and another in August 2025.
    - Priority should be given to the seedlings planted in March 2025, as they are at higher risk of desiccation.

We recommend that irrigation be carried out after 5:00 PM to allow the seedlings to use the water more efficiently and minimize evaporation losses during the hotter parts of the day.

3. **Ongoing Monitoring:**
    - Conduct monthly site inspections to assess seedling condition, identify early signs of stress, and adjust interventions accordingly.
    - Record seedling mortality by species and planting phase to improve future planting strategies.
4. **Contingency Planning:**
    - If drought conditions intensify, consider temporary shading measures for the most vulnerable sections.

It is suggested to engage local community members in maintenance activities to increase the frequency and effectiveness of interventions.

Figure 2.Photos of the seedlings within planted area