



SUSTAINABLE FOREST
MANAGEMENT AND
PAYMENT FOR
ENVIRONMENTAL
SERVICES



COPPING FOR WATERSHED PROTECTION: THE CASE OF ULZA BASIN IN ALBANIA

Haki KOLA, Abdulla DIKU & Gazmend ZENELI

**University of Antwerp, Belgium,
16 June 2016**

ALBANIAN FORESTRY

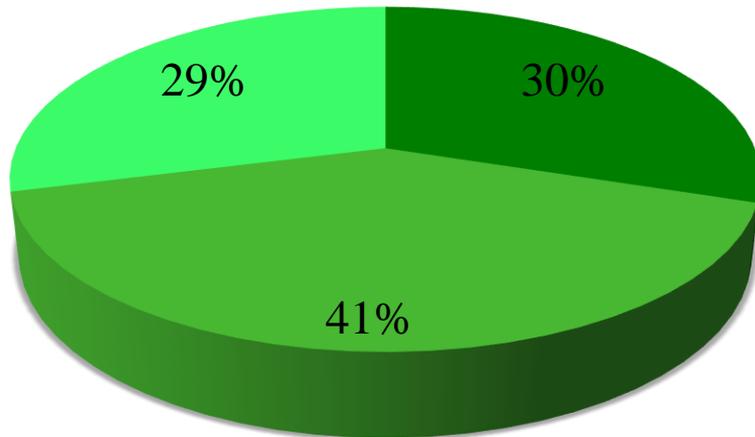
- ❑ **Relatively large forest resources.**
 - ❑ High forest, coppices and shrubs
ca. 941 690 ha
 - ❑ Pastures: 505 280 ha
 - ❑ Other Wooded Land Area:
ca. 30 140 ha
- ❑ **Total growing stock** volume estimated to be ca. 73,5 mill. m³.



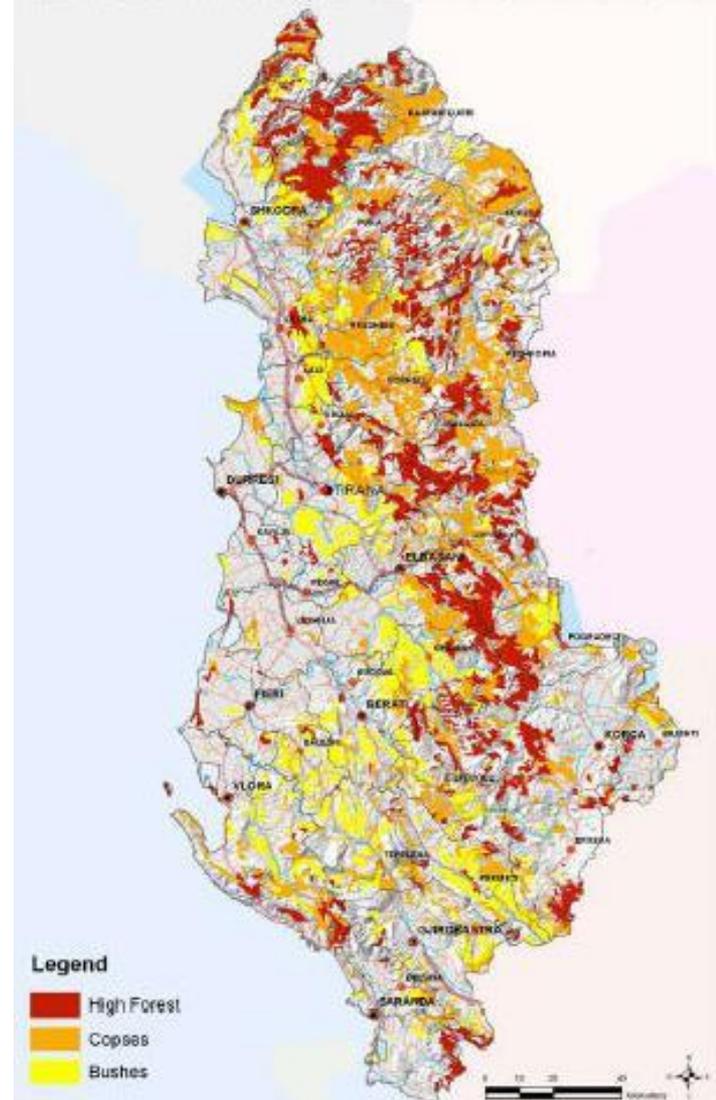
ALBANIAN FORESTRY

Forest regime

■ High Forest ■ Coppice ■ Shrubs

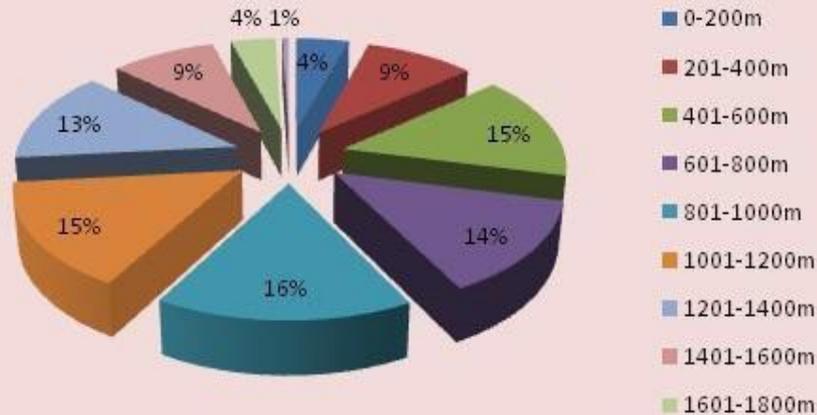


FOREST DISTRIBUTION ACCORDING TO MAIN GOVERNMENT REGIME



ALBANIAN FORESTRY

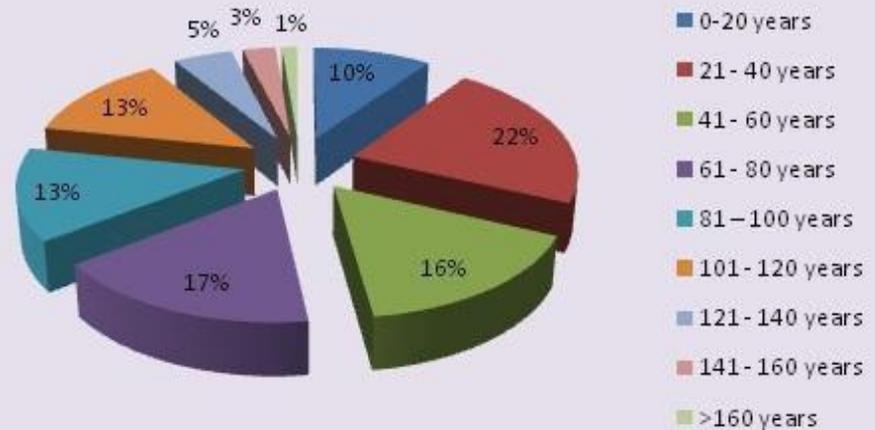
Distribution of Forest by Altitude



Age class distribution is skewed heavily towards young and early mature forest.

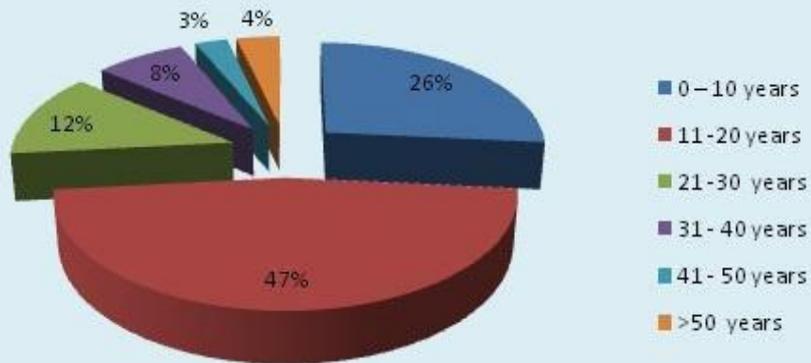
The current forest age distribution will result in future timber supply limitations;

High Forest Age Class Distribution



ALBANIAN FORESTRY

Coppice Forest Age Class Distribution



Early to mid successional stands comprise 77% of high and 91% of coppice Albanian's forest

Annual increment:

ca. 1.800.000 m³/year

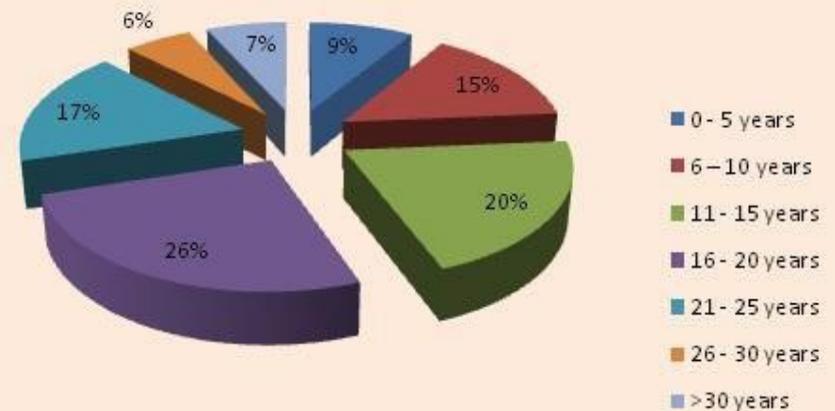
Need

ca. 2.300.000 m³/year firewood

ca. 360.000 m³/year timber;

Ca. 1.600.000 m³/year firewood used by rural population

Schrub Age Class Distribution



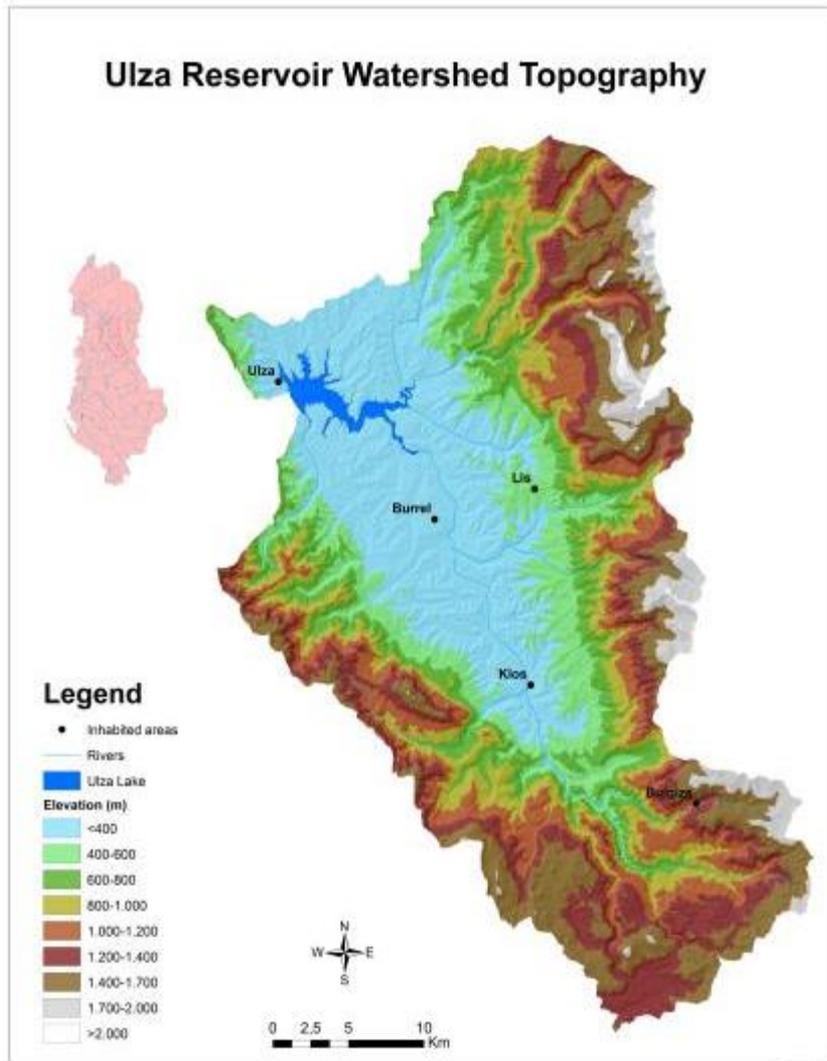


MATI RIVER AND ULZA WATERSHED BASIN



- ❑ The total area of the Ulza watershed is 122,435 ha (1,224 km²).
- ❑ The Ulza Lake, used as reservoir for the Ulza HPP, forms the central part of the watershed together with the valley of the Mati River.
- ❑ The area slopes gently to the Mati river valley from approximately 500 m to approximately 80-120 m asl.
- ❑ The surrounding mountains forming the watershed reach to over 2000 m asl, with the highest peak at 2245 m asl

MATI RIVER AND ULZA WATERSHED BASIN



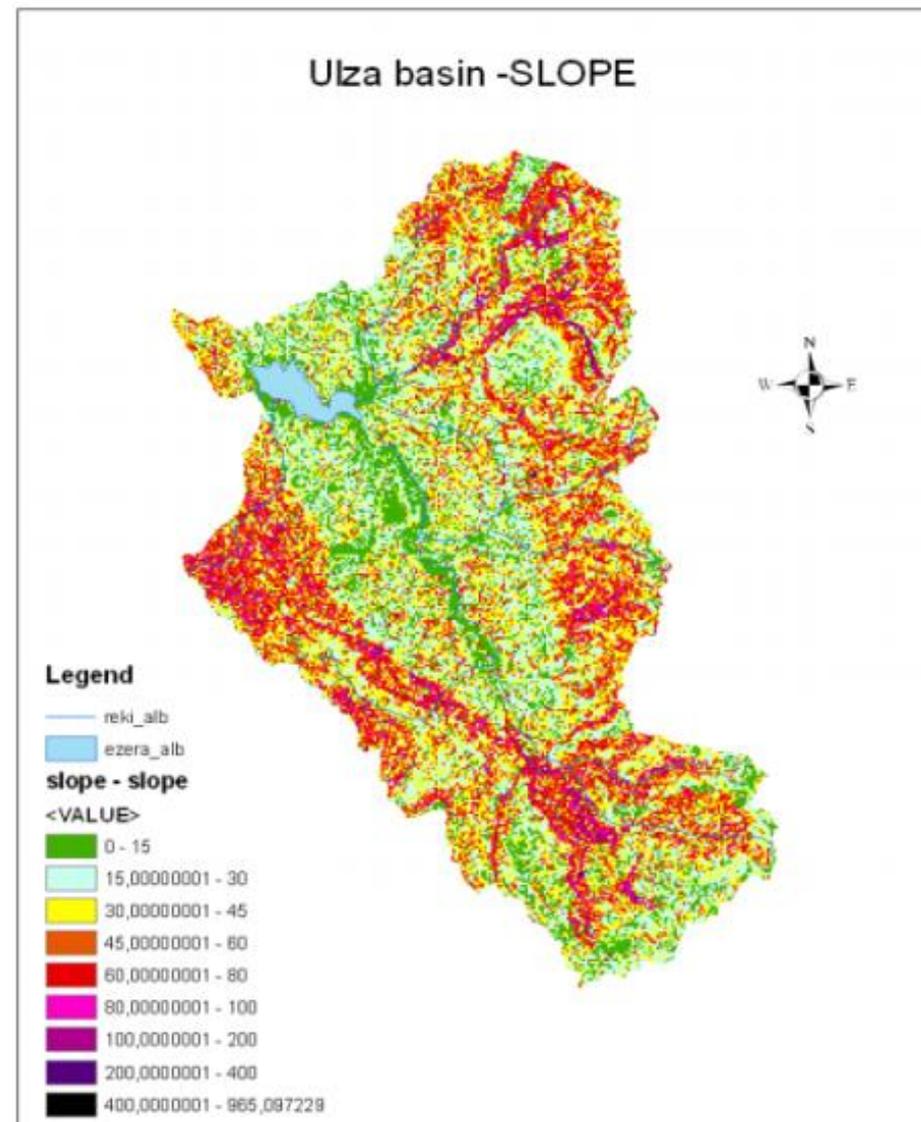
- ❑ The total area of the Ulza watershed is 122,435 ha (1,224 km²).
- ❑ The Ulza Lake, used as reservoir for the Ulza HPP, forms the central part of the watershed together with the valley of the Mati River.
- ❑ The area slopes gently to the Mati river valley from approximately 500 m to approximately 80-120 m asl.
- ❑ The surrounding mountains forming the watershed reach to over 2000 m asl, with the highest peak at 2245 m asl

MATI RIVER AND ULZA WATERSHED BASIN

Ulza Reservoir Watershed Land cover/use

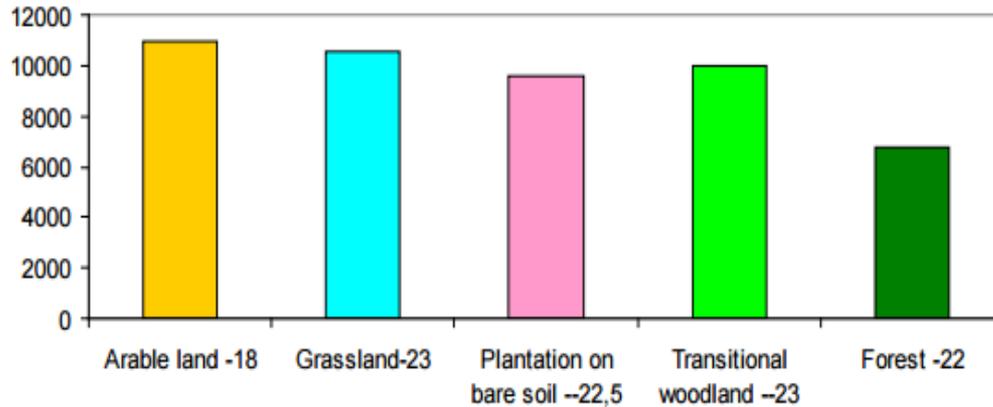


Ulza basin -SLOPE

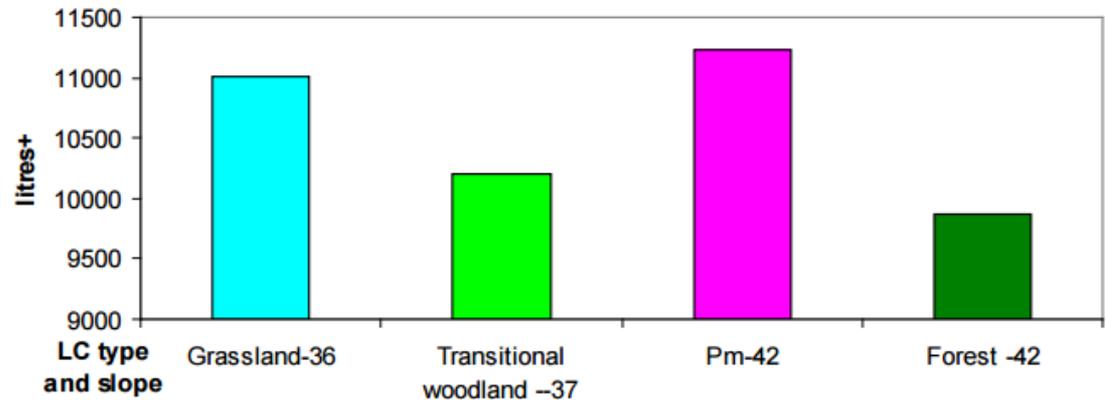


MATI RIVER AND ULZA WATERSHED BASIN

Influence of Land cover on Runoff (slope 22-25%)

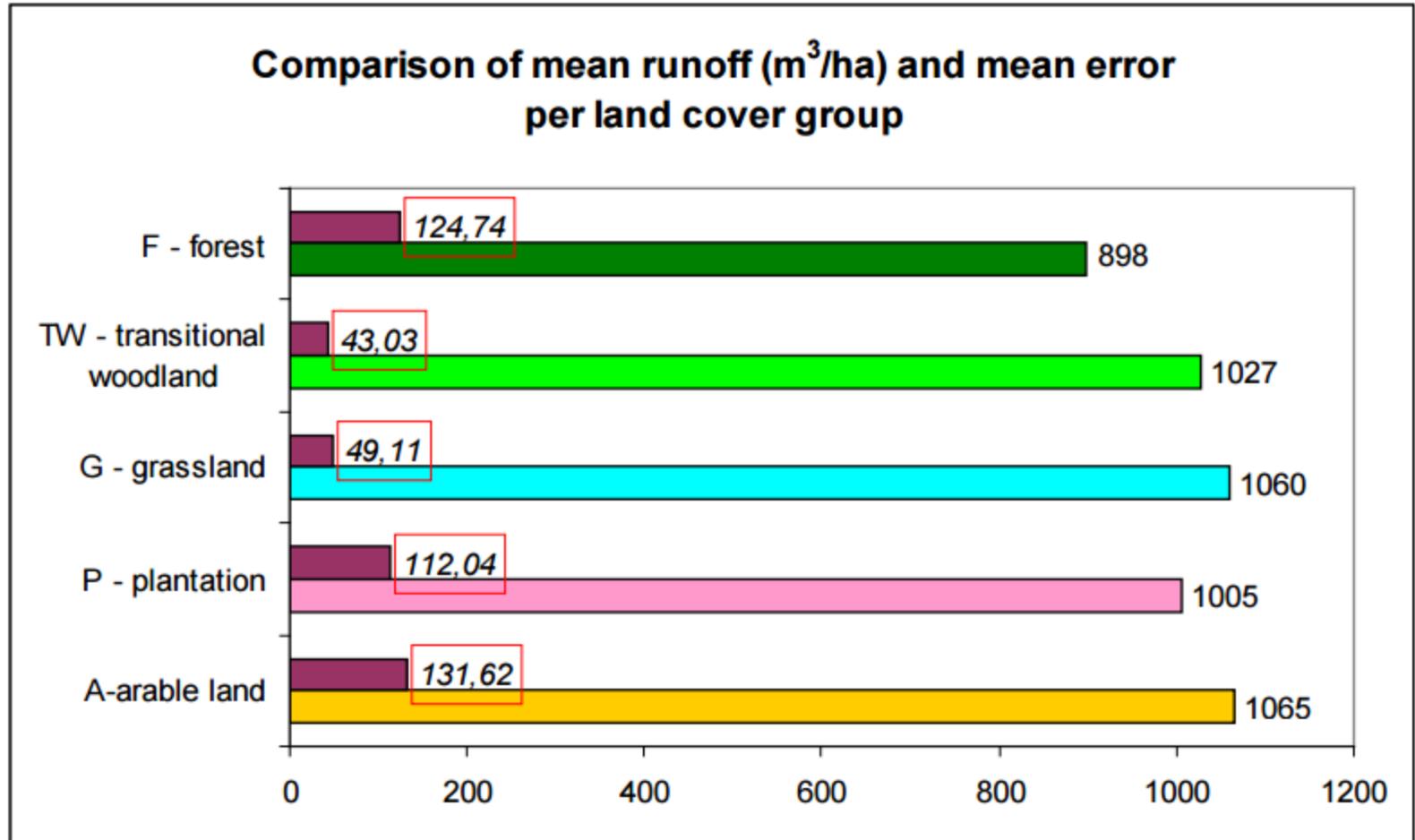


Influence of Land cover on runoff (slope 35-45%)



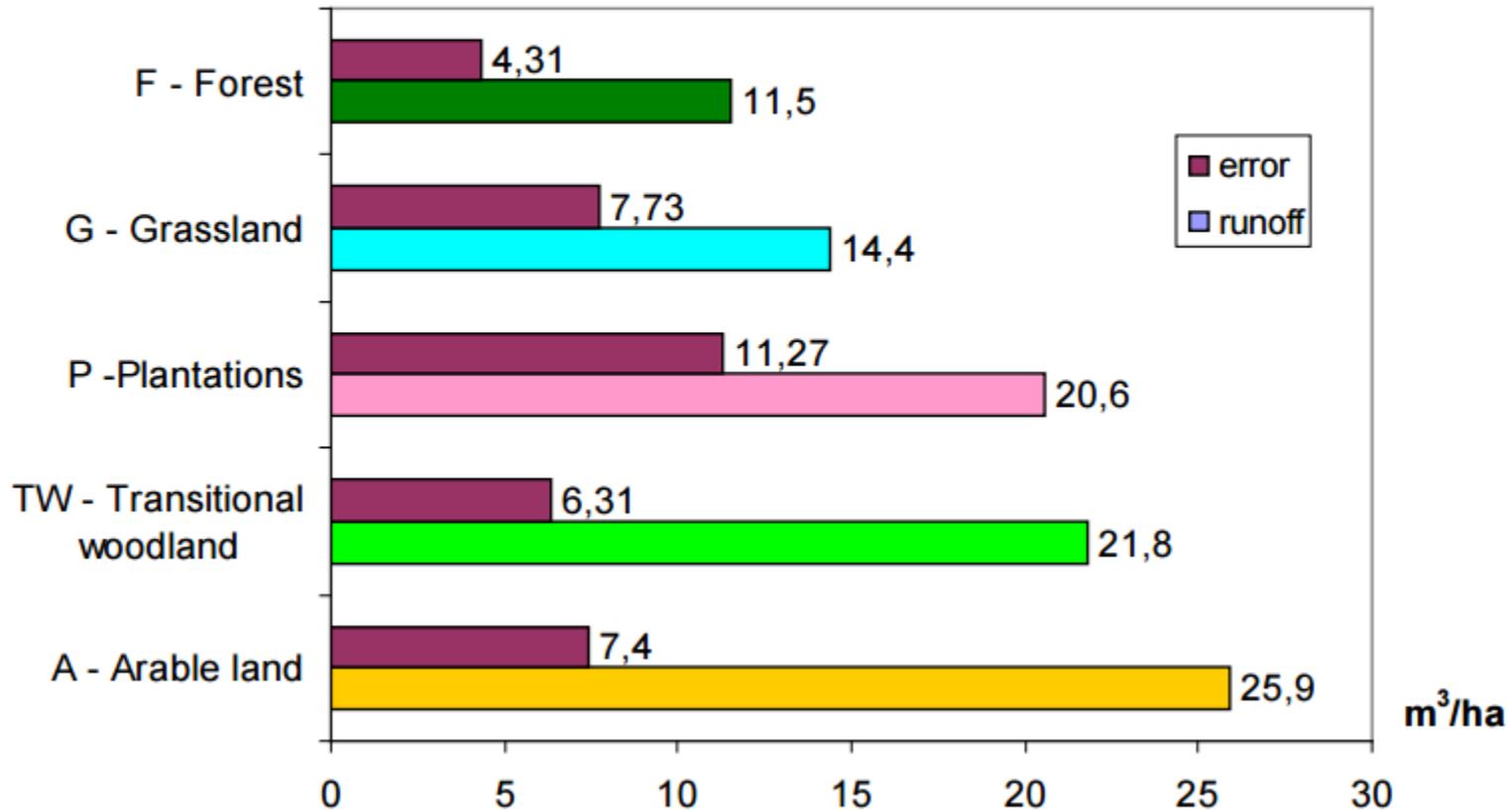
Average run-off values of arable land and bare land are 1.6 times the run-off values of forest land, even where the forest is located on slopes twice or more as steep as the arable/ bare land.

MATI RIVER AND ULZA WATERSHED BASIN

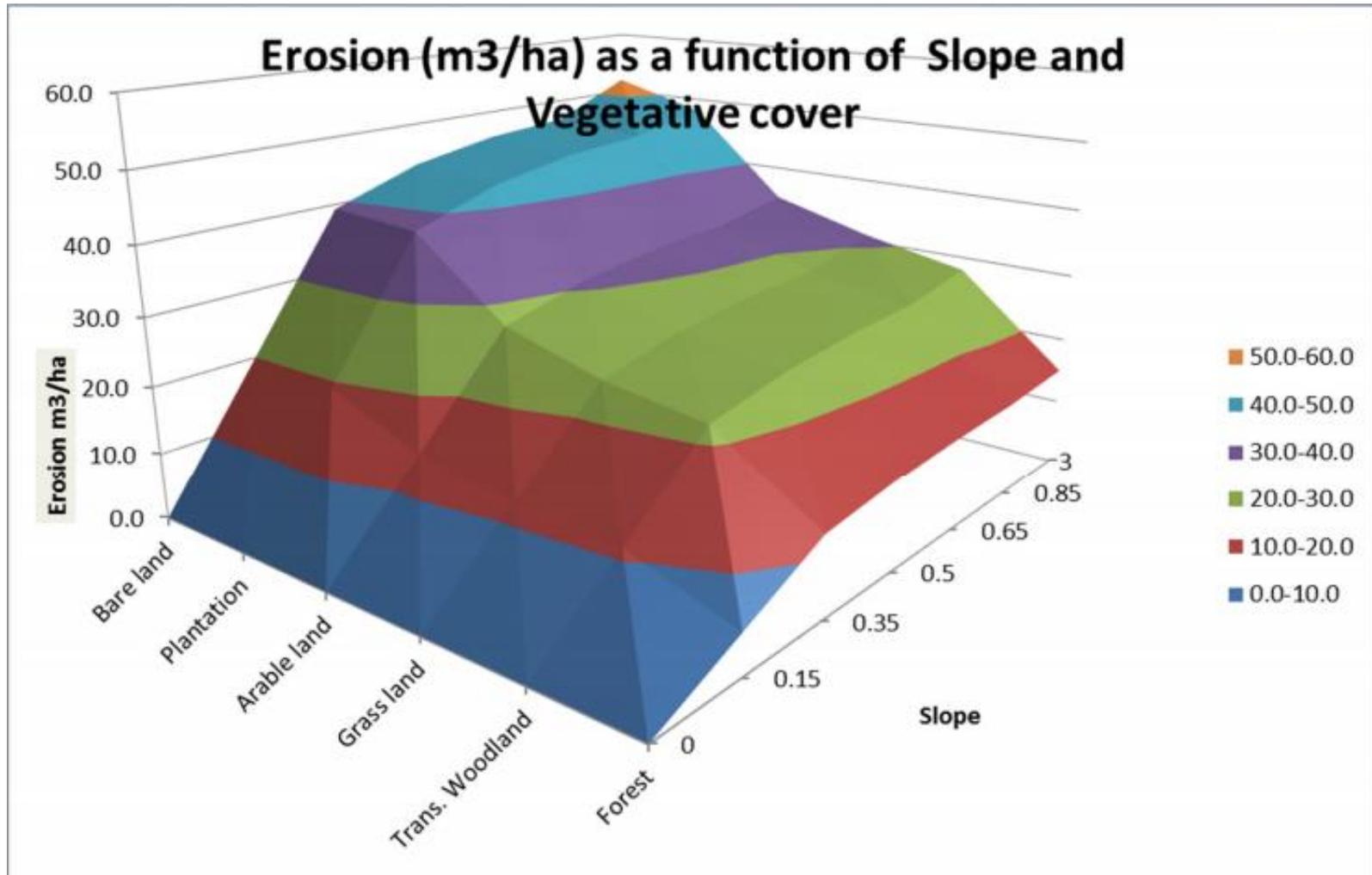


MATI RIVER AND ULZA WATERSHED BASIN

Comparission of mean sediment load (m^3/ha) and mean error per land cover group

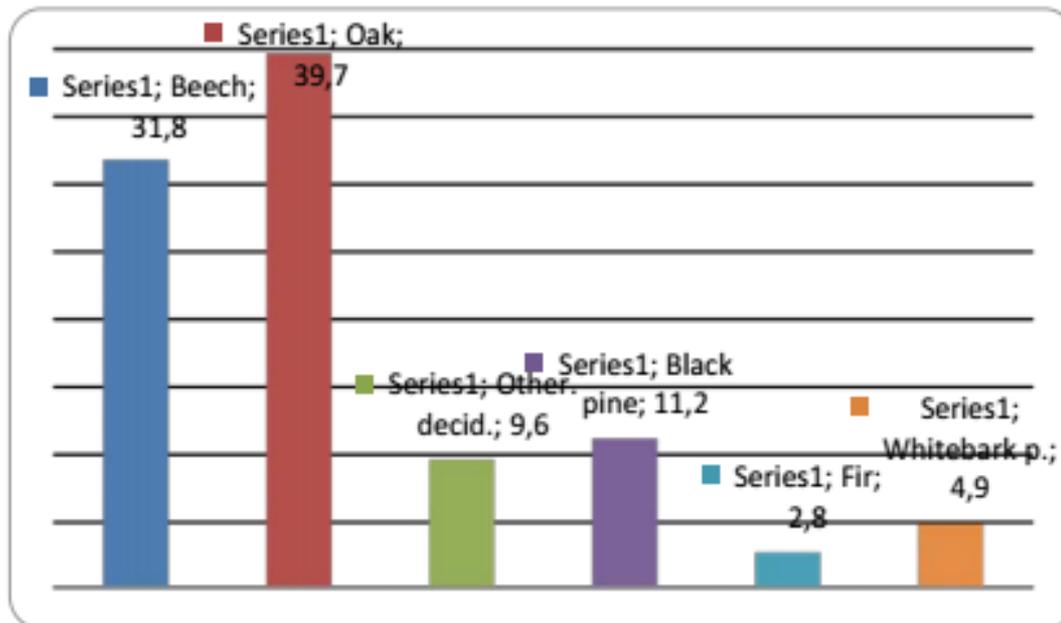


MATI RIVER AND ULZA WATERSHED BASIN



FOREST SPECIES COMPOSITION

No.	Type	Area (ha)	%
1.	Oak	26,567	39.7
2.	Beech	21,300	31.8
3.	Other deciduous sp.	6,455	9.6
4.	Black pine	7,439	11.2
5.	White bark pine	3,275	4.9
6.	Fir	1,858	2.8

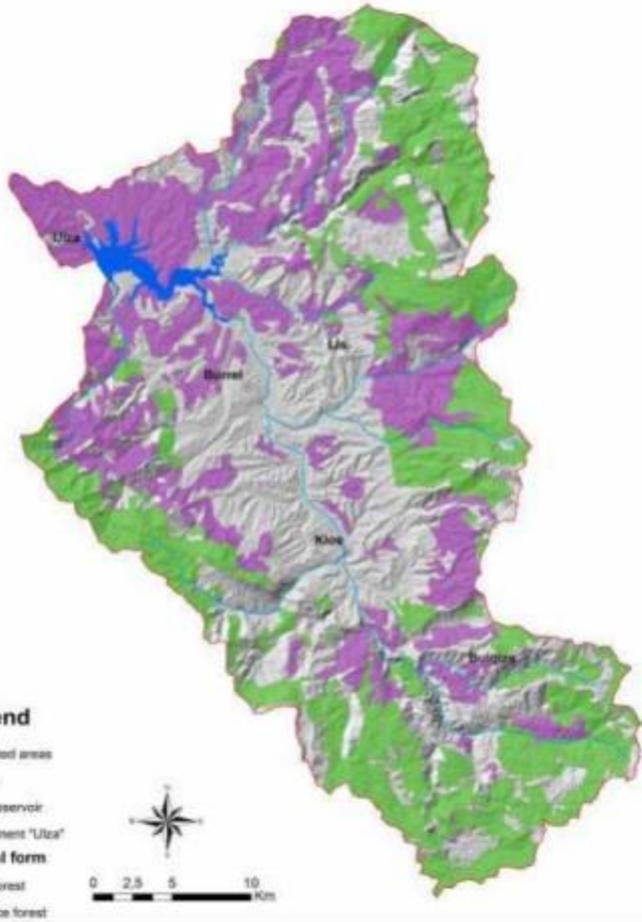


- ❑ The dominant tree species in the catchment area are oak species.
- ❑ Oak is present in the whole area, but dominates in the central parts of the catchment.
- ❑ Currently most of these Oak coppice forests are communal forests under protection and management by the local communities.

FOREST REGIMES

No.	Silvicultural form	Area (ha)	%
1.	Coppice forests	31,903	47.7
2.	High forest	35,045	52.3

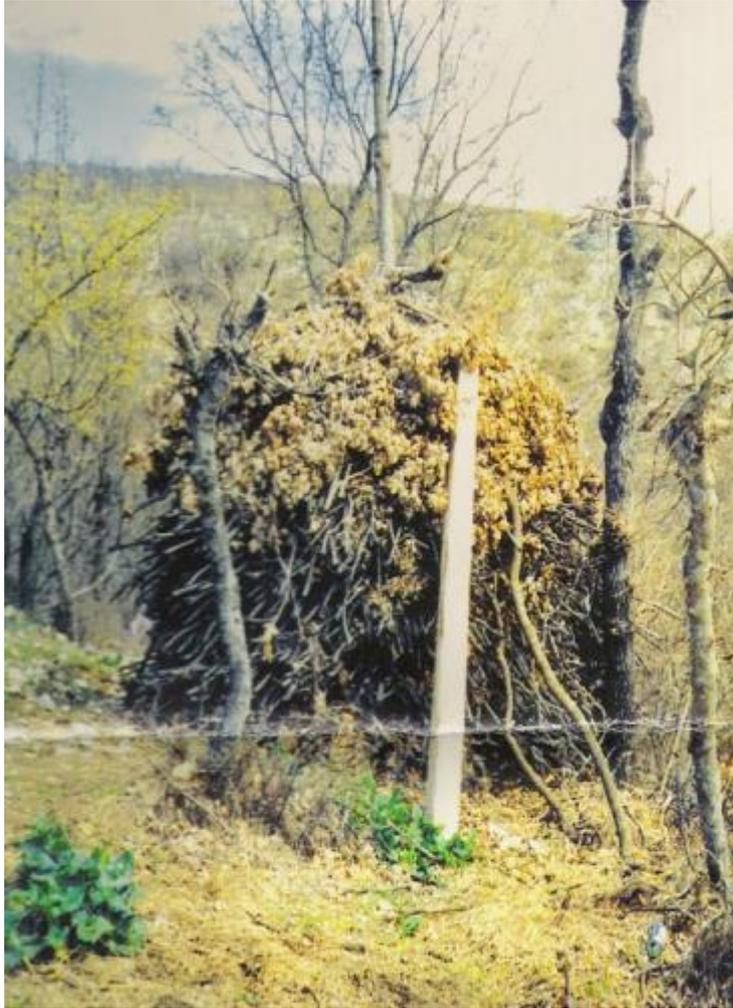
- ❑ Forest cover 76. 950 ha or 63% of the total watershed area.
- ❑ Coppices cover a total area of 31,903 ha (47.7% of the forest area of the catchment or 26% of the total watershed area).
- ❑ Coppice forests are mainly represented by Oak forests communities and few species of deciduous trees.
- ❑ A part of the Beech forests in the submountain and subalpine belt have features and specifications of coppice forests.
- ❑ Majority of Coppice forest are in degraded status



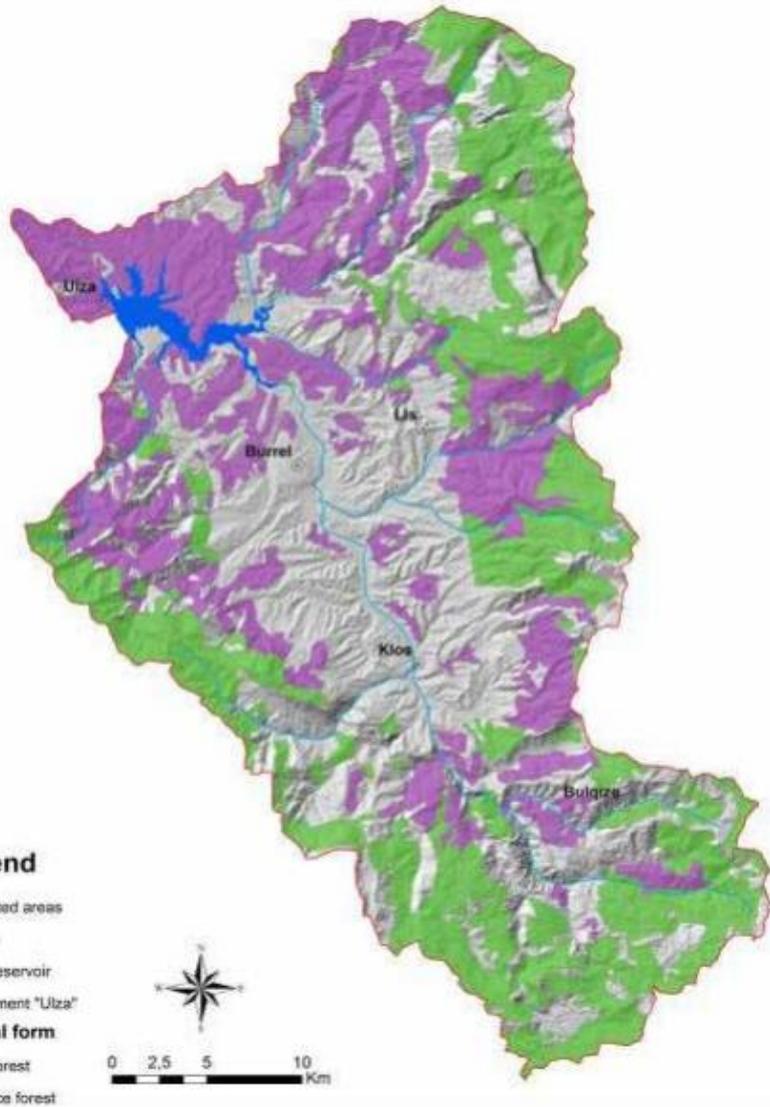
HAYSTACK



STACKING FODDER – TREE BRANCHES



FOREST REGIMES



- ❑ Due to the introduction of communal forests and the protection and regeneration of communal forests now many of the former degraded coppice forests are becoming in the productive stage.
- ❑ The current silvicultural measures undertaken currently by people in these forests are all focused on stand improvements through thinning and pruning and selective cut.



POTENTIAL OF PES SCHEME ON ULZA WATERSHED

- ❑ Results of the erosion monitoring demonstrate the importance of a living soil cover to reduce run-off and sedimentation.
- ❑ The bathymetry measurement showed that already 31% of the total reservoir storage is filled with sediment, with a significant part of the deposited sediment located in the “operational storage” area affecting the functioning of the UHPP.
- ❑ More sediment will be deposited in the operational storage in the near future because significant parts of the non-operational storage are already filled
- ❑ Therefore, a PES scheme could be designed to stimulate upstream farmers in critical watershed areas to practice sustainable Coppice management.
- ❑ Potential direct buyers of ES are the UHPP, other companies using large quantities of water, LGUs and downstream villagers

POTENTIAL OF PES SCHEME ON ULZA WATERSHED

Two options for PES seem most feasible for Ulza watershed:

❑ **Option 1: Government-led scheme:**

- ❑ UHPP taxed or electricity generated by UHP taxed
- ❑ Revenues used as subsidy for financing sustainable coppice management practices

❑ **Option 2: User-led scheme**

- ❑ UHPP directly paying (or through FPUA) upland farmers for sustainable coppice management practices
- ❑ Starting small with some farmers in most critical areas and further out scaling based on lessons

POTENTIAL OF PES SCHEME ON ULZA WATERSHED

❑ **Option 1: Government-led scheme:**

- ❑ *Advantages:* (1) lower transaction costs, (2) better links with policies and dealing more effectively with free riders, (3) multiple-layer benefits and leakage.
- ❑ *Disadvantages:* (1) mostly pay a fixed amount per hectare, which reduces cost efficiency, (2) tend to have low conditionality and additionality.

❑ **Option 2: User-led scheme**

- ❑ *Advantages:* (1) they are generally more robust and flexible, (2) designed by customized, participatory processes and (3) less vulnerable to political winds of change.
- ❑ *Disadvantages:* (1) more insights are needed in the costs associated with sedimentation in the operational capacity of the reservoir

POTENTIAL OF PES SCHEME ON ULZA WATERSHED



POTENTIAL OF PES SCHEME ON ULZA WATERSHED

- ❑ Component 3 of the newly started World Bank Project “Introducing Payments for Environmental Services” will help establish financing mechanisms to reduce land degradation and support sustainable livelihoods through provision of and compensation for environmental services.
- ❑ Piloting of Payments for Watershed Services will implement a pilot PES scheme that may include areas surrounding Bovilla Reservoir and Ulza Reservoir.
- ❑ There are a number of Ecosystem Services provided in the Ulza watershed area: watershed protection, landscape beauty, and carbon sequestration. Erosion control and obtaining a good water management are one of the main issues in the watershed.
- ❑ Watershed protection is thus the most promising ES for entering into PES deals.

WHAT'S NEXT?

**THE ROAD TO HELL IS PAVED
WITH GOOD INTENTIONS**

A scenic view of a river flowing through a rocky canyon. The river is a deep blue-green color, winding through the center of the canyon. The surrounding cliffs are made of light-colored, jagged rock, and the slopes are covered in dense, vibrant green trees and shrubs. The lighting is bright, suggesting a sunny day. The overall atmosphere is peaceful and natural.

THANK YOU

FOREST FOR CARBON SEQUESTRATION

- ❑ Through the Carbon Sequestration Project during 2008 to 2012, 24 communes sequestered 128,787 tons of CO²e, for which they received temporary Certified Emission Reductions under the CDM.
- ❑ The carbon was/is being purchased by the BioCarbon fund through an Emissions Reduction Purchase Agreement (ERPA).

