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Annals of Biological Research, 2011, 2 (3) :12-16
(http://scholarsresearchlibrary.com/archive.html)

ISSN 0976-1233
CODEN (USA): ABRNBW

Over-under ground Biomass characteristic of perennial Species (*Verbascum cheiranthifolium*) In northwest Iran (Till area of Shabestar)

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ABSTRACT

In this research studied root depth characterize and Verbascum cheiranthifolium Boiss.) Species biomass density of till range plants from Shabestar environs for using in slopes drabbling. Balance rain is yearly average area max 250 mm and most rain is Usually in May season. Soil Biomass density depends on Species, plant age, place and as perennial Plants increase, soil biomass density will increase. The results of this research showed that Verbascum cheiranthifolium Species with 17 root depth and average stem height 30.25 cm and average over ground of plant biomass is 1.13 gr/m^2 and average under ground of plant biomass is 0.20 gr/m^2 and indicated that the root of rangeland shrubs can stabile slope soil.

Key words: Root biomass, *Verbascum cheiranthifolium*, rangeland and soil.

INTROUDUCTION

Verbascum an important genus of family Scrophulariaceae is distributed in the mountains of tropical Asia, Europe, America and Himalaya. About 41 species of *Verbascum* occur in Iran [9].Management of vegetation and litter cover on rangeland is the principal means available to reduce erosion impacts on streams. One of the important Factors in soil erosion in studding area is because of shrubs decreasing that have more root depth. By irregular and unsystematic utilization of rangeland shrubs, natural potential of erosion will be more. In that case if there isn't environmental management on this process, the damage of flood and soil erosion will progressively increase in future. Because by decreasing range Species in ranges such as *Verbascum cheiranthifolium* the amount of bulk soil will be lesser in front of created unsealing. Resulted that beating of utilization and other human activities in range will decrease spreading of the root system. In that time the amount of soil protection and extended soil stability will be less. Different Species of range plants were studied by researches [3, 8]. Erosion from rangelands is a major contributor of no point source pollution to streams. This has become a major concern for range managers in the western United States. Soil loss is affected by various abiotic, biotic, and

management factors. Rangeland watershed management practices often affect vegetation and ground cover, which in turn influence soil erosion [6, 16]. Partial correlation coefficients, between simulated variable values and simulated soil loss, were used as criteria to measure the sensitivity of the model prediction of soil loss to changes in a variable value after removing all the effects of the other variables [11, 17]. The objective of this study was to determine if near surface data (0 to 17 cm depth) improved erosion and hydrologic predictions over 16 to 18 cm depth data for specific sites. Eleven benchmark sites were selected from throughout the western SW Each site had a different soil series and historical plant community. Annual plant production, root biomass (topsoil), root/shoot ratio, plant species counts, and lists of the 10 most common species was determined for each subsides.

MATERIALS AND METHODS

Siding area is lied in 25 kilometer of Shabestar between 38˚ 15´ to 38˚ 17´ 30" from northern width and 45˚ 27´ 30"- 45˚ 30´easten length of prime meridian and the total space of the area is almost 310.31 k/m^2 for Studding this research, we selected 10 hectare spas from Till Range that it includes foot with southern facing of geographic. This land covered with natural range land grasses. Misho Mountain can cause weather adjustment and finally it can cause engendering of mountainous weather [12]. Vegetal Species , that grows naturally in Azerbaijan of Iran and commonly found in rangelands areas, were selected this species for test in (table1) the Scientific and Farsi name of that species with blossoming time and local position.

Table 1. Collected and determined species with blossom time and geographic height [7, 9].

Dicotyledonos: Angiosperms Gamopetalous				
Geographic height	Blossoming time	Species Persian name	Species binominal name	Family
Collecting place: Hussein Abad till, Height 1510m	Apr-Jun	Mahoore khazari	*Verbascum cheiranthifolium*	Scrophulariaceae

Fig1: *Scutellaria pinnatifida* species

Research Method

For recognition of Species for sampling, we used of accidental sampling method. In simple accidental sampling method each people has equal for selecting [5]. In this sampling determined accidental vegetal coverage and or un-coverage in each plot. We determined Geographical direction and elevation for each plot [15].

Sampling is done from early May to late July and it ended late June when 60% of area coverage was in Blossoming stage. And most of the plats were used from above Statistical method in this season. And all of the present Plants in plats after Plant sampling were measured in two parts separately [13, 14]. sampling from area studding Plants after sending to laboratories, Each plant was photographed to record general above- ground and below-ground morphology/architecture prior to being dissected into its component parts to determine biomass. Above-ground biomass was measured by separating the foliage, branches and stem. Each component was oven dried at 80˚c for 24 h then weighed. Below-ground biomass was determined by hosing roots clean of soil, before they were oven dried at 80˚c for 24 h then weighed. The dry weight of each plant component was recorded to the nearest 0.1gr. And statistical analyzing is done by Excel.

RESULTS

Results of this showed that in studding area stem height , *Verbascum cheiranthifolium* was unsteady from 11.5-49 mm, that in average it is about 30.25 mm and the Mean, Max and Min underground of Biomass in studding area 1.13, 13.8, 4.41gr/m^2, respectively. The variation in fresh weight during the maturation and senescence phase was is significant.

Table2. Calculation is done for vegetal Species.

Plant Binominal name *Verbascum cheiranthifolium*	Average height (cm)	Average root depth (cm)	Total Weight Fresh stem(gr)	Total Weight Fresh root(gr)	Total Weight dry stem(gr)	Total Weight dry root(gr)
Average In unit Surface	30.25	17	5.06	0.66	1.13	0.20
Max	49	18	56.64	7.39	13.8	2.46
Min	11.5	16	24.25	3.28	4.41	0.78

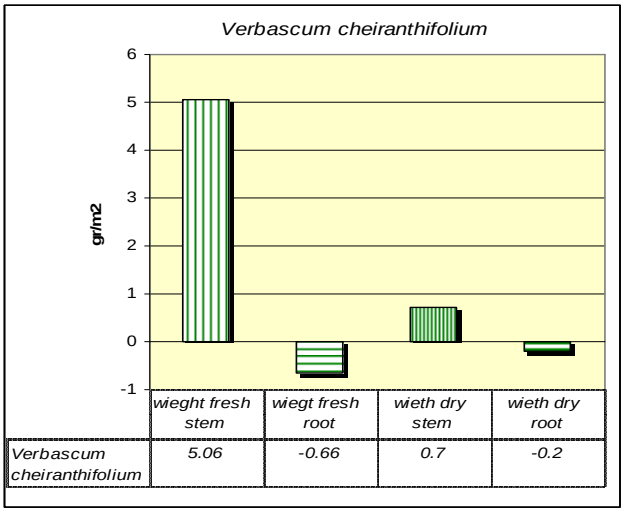

Fig2. *Verbascum cheiranthifolium* average Biomass over ground and under ground.

The results showed that *Verbascum cheiranthifolium* depth is 17 cm and stem height is 30.25 cm (Fig3).

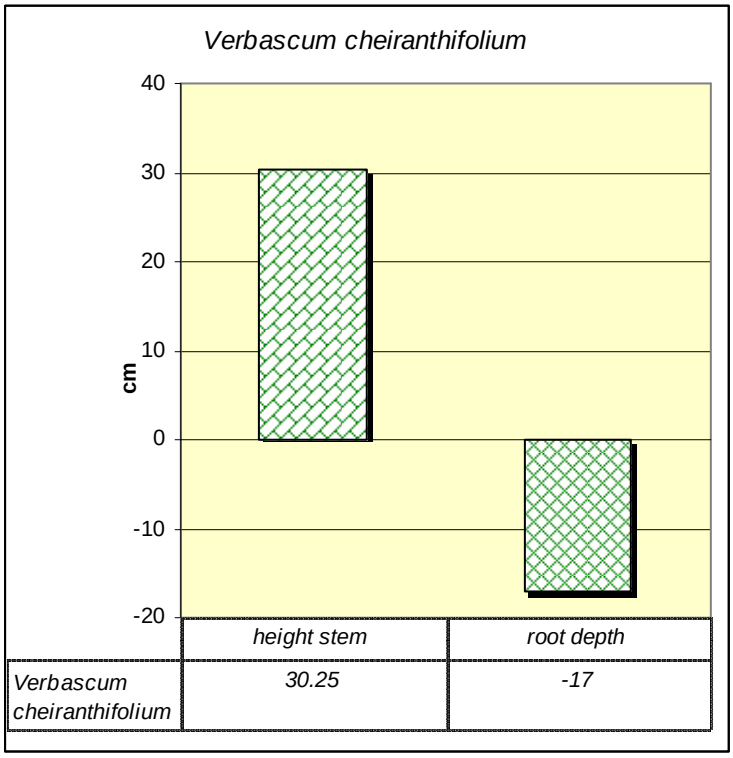

Fig3. *Verbascum cheiranthifolium* average root depth and stem height.

CONCIUSION

Research area shows that what *Verbascum cheiranthifolium* Species rich in area are. It can cause remarkable increase on Soil resistant of shelvy area. And reason is because of parameters in *Verbascum cheiranthifolium* Species that extensive from the point of root extension and root depth. In perennial Plant its extension and root influence is more than others. Roots transmittance in studying area deepens on density and amount of lateral germination of roots in rangeland shrub. Suppose that transmittance of root in land is circle. Whatever spreading roots are faster, the amount of protection and extension of durable Soil will be more Many of range shrubs most of the roots is pervade in 1.5 m. biomass root scrutiny has is quantitative studying pointed. As some research is done by Habibi on *Parrotia persica* he understands that almost 90% of root bulk in all age classes are more than 2.5 m. the amount of germination in early year of plant establishment in area include important effects in reaching to Maximum biomass root in rune shabs. As we know this period have more relative effects in decreasing the amount of alluvium that engenders from Soil lapse by these Plants. It's in the case that only Biomass root can't be as a strong factor for calculation of stabling effects by range shrubs [3, 4]. Increases in clay content tended to reduce infiltration and, thus, increased runoff and erosion. An increase in organic matter contributes to increased porosity and infiltration rates that, in turn, reduce runoff and soil loss [1, 2 and 10].

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