
(AHP)

Eurotia ceratoides

(// : // :)

E. ceratoides

()
(AHP)

/ /

/ ()

E. ceratoides

Eurotia ceratoides

()

() .()

.()

.()

()

Bitter brush

.()

()

.()

.()

()

Festuca idahocnsis

()

E.ceratoides

()
()

()

()

.()

.()
AHP

()

()

AHP

.()

.()

/ / /
 / () ()
 .()
)
 (...)
 (...)
 ()
 .()
 .
 .()
Eurotia AHP ()
ceratoides/ Bromus tomentallus .()
Stipa barbata Astragalus cyclophylos AHP ()
Polygonum salicornoides () .()
 .()
E.ceratoides AHP ()
 .()
 () ()
 .()
 AHP ()

... (AHP)

Ia

()

AC

()

AHP

AHP

()

()

E.ceratoides

AHP

()

AHP

()

$$N = \frac{t^2 s^2}{(kx)^2}$$

()

N

;

(

\bar{x}

;

(

(n-1) k,)

t

()

(

(/)

()

()

()

()

()

$$Ia = \frac{d\bar{x}_i \times 100}{x}$$

$$a_{12} = (a_{121} \times a_{122} \times \dots \times a_{12N})^{\frac{1}{N}}$$

()

$$d\bar{x}_i = \bar{x}_i - \bar{x}$$

$$Ac = 100 - Ia$$

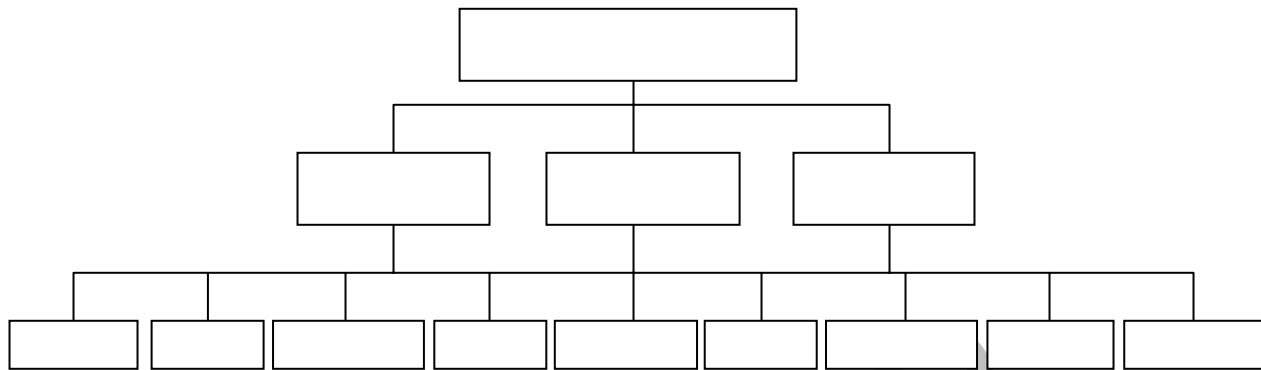
\bar{x} :

$d\bar{x}_i$

\bar{x}_i

- Inaccuracy

- Accuracy



() ()

EC 2000

)

/

/

.

(/)

AHP

. () /

/

. (/ / /)

()

()

()

()

()

(P < /)

- Expert Choice

- Inconsistency Ratio

= /

روش شمارش ساقه +۳۰۷	
روش تخمین چشمی +۱۸۳	
روش شمارش گیاه +۱۴۸	
روش ارتفاع و وزن +۱۴۷	
روش واحد مرجع +۱۱۲	
روش شاخص تولید +۰۹۴	
روش طول سرشاخه +۰۶۱	
روش قبل و بعد از چرا +۰۳۶	
روش قطع و توزین +۰۲۲	

/

/ /

/

(/)

= /

روش شمارش ساقه +۳۱۵	
روش شمارش گیاه +۱۶۵	
روش ارتفاع و وزن +۱۴۹	
روش واحد مرجع +۱۲۳	
روش تخمین چشمی +۱۱۷	
روش شاخص تولید +۱۰۵	
روش طول سرشاخه +۰۶۹	
روش قبل و بعد از چرا +۰۳۰	
روش قطع و توزین +۰۲۷	

E.

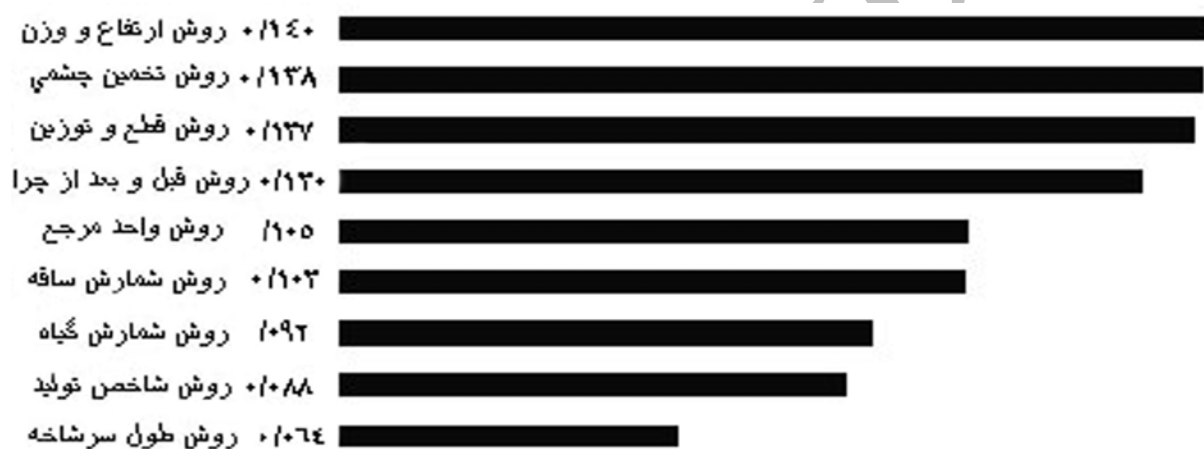
/

ceratoides

E.ceratoides

(/)

= /



E.ceratoides

E.ceratoides

()

()

/ ()

()

/

() *E.ceratoides*

/

Bitter brush

() ()
() ()
()

() ()

()
() ()
()

() ()
()

Archive of SID

)

(

()

()
()

()

()

()

)

()

()

E.

ceratoides

()

()

()

()

()

()

()

()

()

()

()

)

(

Archive of SID

()

()

()

()

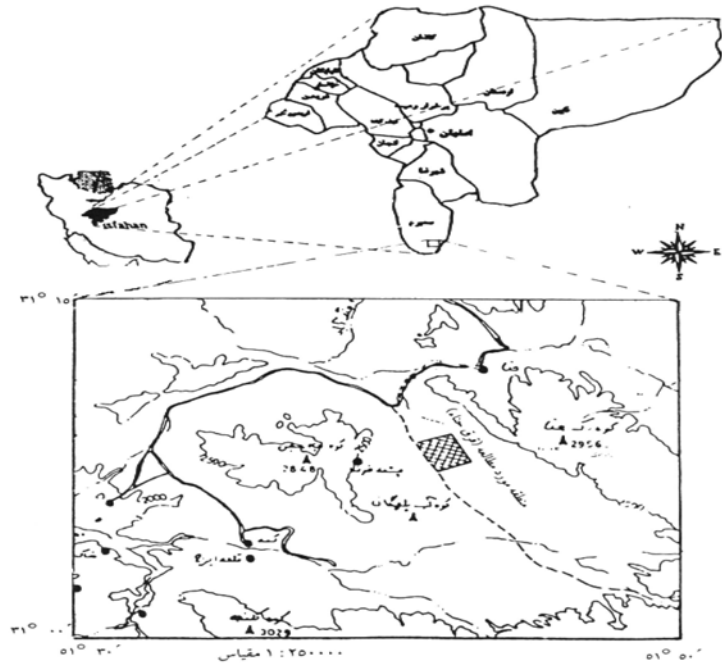
()

()

() ()

()

Archive of SID



E.ceratooides

Archive 03

.RS GIS

AHP

.AHP

- 14- Bonham. D.,1989 Measurements for terrestrial vegetation, John Wiley and Sons, Inc., New York.
- 15- Brown D.,1954 .Methods of surveying and measuring vegetation bulletin 42, Common Wealth Bureau of pastures and field crops. Hurley, Berkshire. 223-224 pp.
- 16- Cassady, J.T.,1941.A method of determining range forage utilization by sheep. J.Forest. Vol. 39 (8): 667 - 671.
- 17- Cook, C.W. and Stubbendieek, W.,1986. Range Research: Basic problems and Techniques Published by Society for Range Manage. U.S.A.
- 18- Heady, H.F.,1975. Range Manage. Me .Graw - Hill. New York.
- 19- Hormay, A.L.,1943. A method of estimating grazing use of bitter brush. Research Note35. USDA Forest Service.California.Forest and range experiment station4.
- 20- Hurd, R.M., and Kissinger, N.A.1953. Estimating utilization of Idaho Fescue *Festuca idahocnsis* on cattle range by percent of plants grazed. Rocky Mountain Forest and Range Experiment Station. Vol. 12.1 – 5 pp.
- 21 - Klingman, D.S and Miles, R.1943. The cage method for determining consumption and yield of pasture herbage. Jour. Am. Soc. Agrou. Vol. 35. No.9. 739 - 746 pp.
- 22- Lommason, T., and Crandler, J.1938. Grass volume tables for determining range utilization. Science. Vol.87. No.22. 44 - 63 pp.
- 23- Neil, and Diego .1986. Reference united method for shrub plants. J. Range Manage.,Vol.32. No,2.
- 24- Nelson, E.W.1930. Methods of studying shrub by plants in relation to grazing. Vol. 11.764 - 769 pp.
- 25- Pichanec, J.F. and Pickford., G.D.,1937. A comparison of some methods used in determining percentage utilization of range grasses. J.Agr. Res. Vol. 54. 753-765 pp.
- 26- Saaty, T.L., 2000. Decision making for leaders, RWS Publications, Pittsburgh, PA,322PP.
- 27- Springfield, H.W., and Peterson., G.,1964. Use of the Grazed plant method for estimating utilization of some range grasses in New Mexico. USDA Forest service. Rocky Mountain forest and range experiment station research . Note.22.
- 28- Stoddart, L.A.1935. Range capacity determination Ecology. Vol, 16. No, 3. 531 -533 pp.
- 29- Vallentine, J.F. 1989. Range Development and Improvements, 3nd Edition.
- 30- Yang, line, and Gu.Changfa.2003.The method of AHP for choosing the best plan of forest-region highway Route.J.Northeast Forestry University.Vol 31(1).pp: 51-52.
- 31- Yue, Dong Xia, li. Wenlong, and Li Zizhen.2004.Analysis of AHP strategic decision for grazing management system and ecological restoration in alpine wetland of Gannan. Acta-Boreali-Occidentalia-Sinica. Vol 24 (2). pp: 248-253.

Application of Analytical Hierarchy Process (AHP) in Prioritizing Methods of Utilization Measurement in *Eurotia ceratoides*

F. Amiri^{*1}, M. Bassiri² and M.R. Chaichi³

¹ Scientific Member of Islamic Azad University, Busheher Branch, I. R. Iran

² Assistant Prof, of Natural Resources, University of Technology Isfahan, I. R. Iran

³ Associate Prof, Faculty of Agriculture, University of Tehran, I. R. Iran

(Received 8 June 2005, Accepted 11 June 2007)

Abstract

The selection of appropriate methods of utilization assessment is of great importance for evaluation of grazing management. To compare accuracy, expenses and time requirement of some utilization measurement methods for *Eurotia ceratoides*, an investigation was conducted in Hanna range Semirom, Isfahan. In this study, paired cages (for control) before and after grazing, height-weight measurement, ocular estimate, reference unit, plant count, stem count, production index and twig length measurement methods were used. All methods were compared by using paired cages (control test) based on Duncan multiple regression test. Analytical Hierarchy Process (AHP) was also employed to rank the methods in terms of accuracy, expenses and time requirement. Comparing methods showed that the stem count method is the most rapid and least expensive method with 0.207 and 0.215 priority rates, respectively, for time and expenses appeared to be the most proper method. However, comparing all criteria (accuracy, cost and time) concerning the methods shows that the height-weight method with the priority rate of 0.14 is the most suitable method for utilization assessment in *E. ceratoides*.

Key words: Utilization assessment, Priority rate, Analytical Hierarchy Process, Accuracy and *Eurotia ceratoides*

* Corresponding author:

Tel: 0913-1102025 , Fax:

E-mail: amiri_fazel@yahoo.com