

( *Procyon lotor* )

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(*Procyon lotor*)

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(ENFA)

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ENFA

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... (*Procyon lotor*)

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(Anderson *et al.*, 1999 Mack *et al.*, 1997)

(Kaufmann, 1982)

-  
GIS

(Ikeda *et al.*, 2004)

(ENFA<sup>1</sup>)

ENFA .

(Hirzel *et al.*, 2002) .

Hirzel *et al.*, )

Master *et* Oliver and Wotherspoon, 2005 2002

ENFA (al., 2007

(PCA<sup>2</sup>)

(Factors)

( )

Bremner and )

- (Strubbe and Matthysen, 2008 park, 2007

( )

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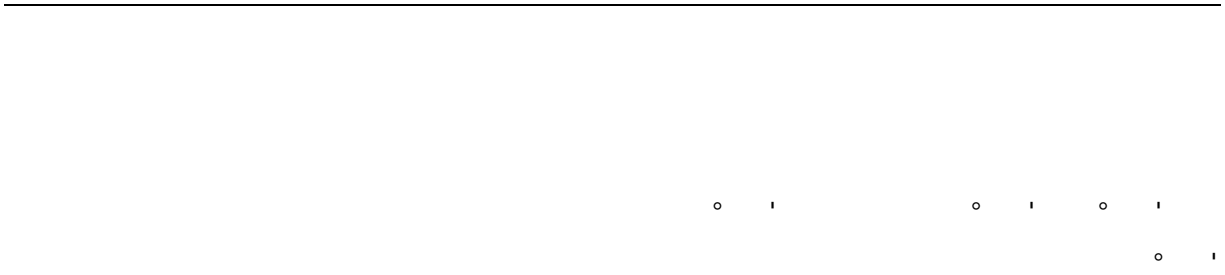
( )

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<sup>1</sup> Ecological Niche Factor Analysis

<sup>2</sup> Principal Component Analysis



(Hirzel *et al.*, 2002)

(Hirzel *et al.*, 2007)

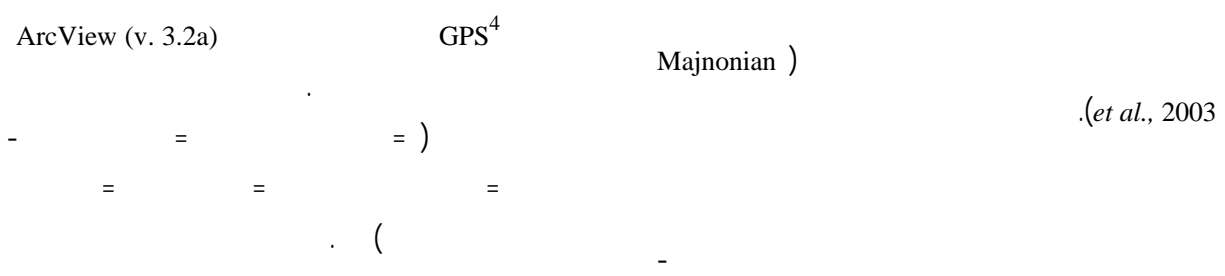
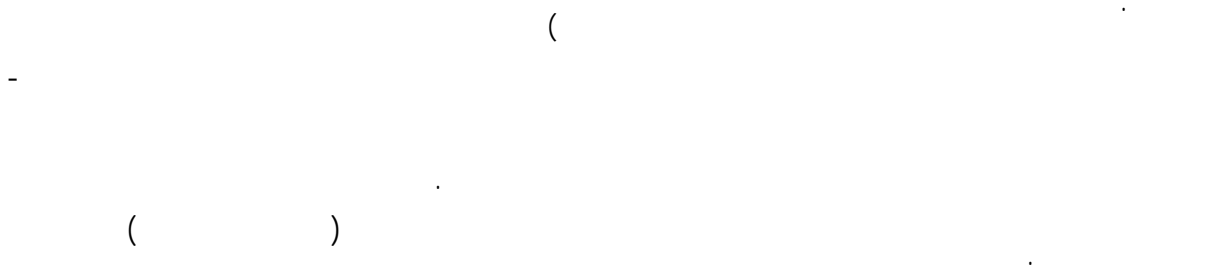
Biomapper (v. 4)

IDRISI (v. Clerk Labs, 2006)

Fragstats (v. 3.3) (McGarigal *et al.*, 2002) 15

ArcView (v. 3.2a) (Environmental Systems  
Research Institute, 1970-2011)

Biomapper (v.4)



ArcView (v. 3.2a)

GPS<sup>4</sup>

Majnonian )

(*et al.*, 2003)

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<sup>2</sup> Marginality

<sup>3</sup> Global tolerance

<sup>4</sup> Global Positioning System

<sup>1</sup> Specialization

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R2V

IDRISI (v. 15)

(Hirzel *et al.*, 2002)

IDRISI (v. 15)

Cross-validation

Hirzel *et al.*, )

- +

( )

(2006

IDRISI (v. ArcView (v. 3.2)

: . 15)

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$$F_i = N_i / A_i ) F_i$$

)

$$( F_i =$$

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ENFA

(ENFA

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Biomapper (v. 4)

ENFA

(*Rubus*.)

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<sup>4</sup> Specialisation

<sup>5</sup> Mc-Arthur's broken stick

<sup>6</sup> Continuous Boyce index

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<sup>1</sup> Landscape

<sup>2</sup> Score matrix

<sup>3</sup> Marginality



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( )

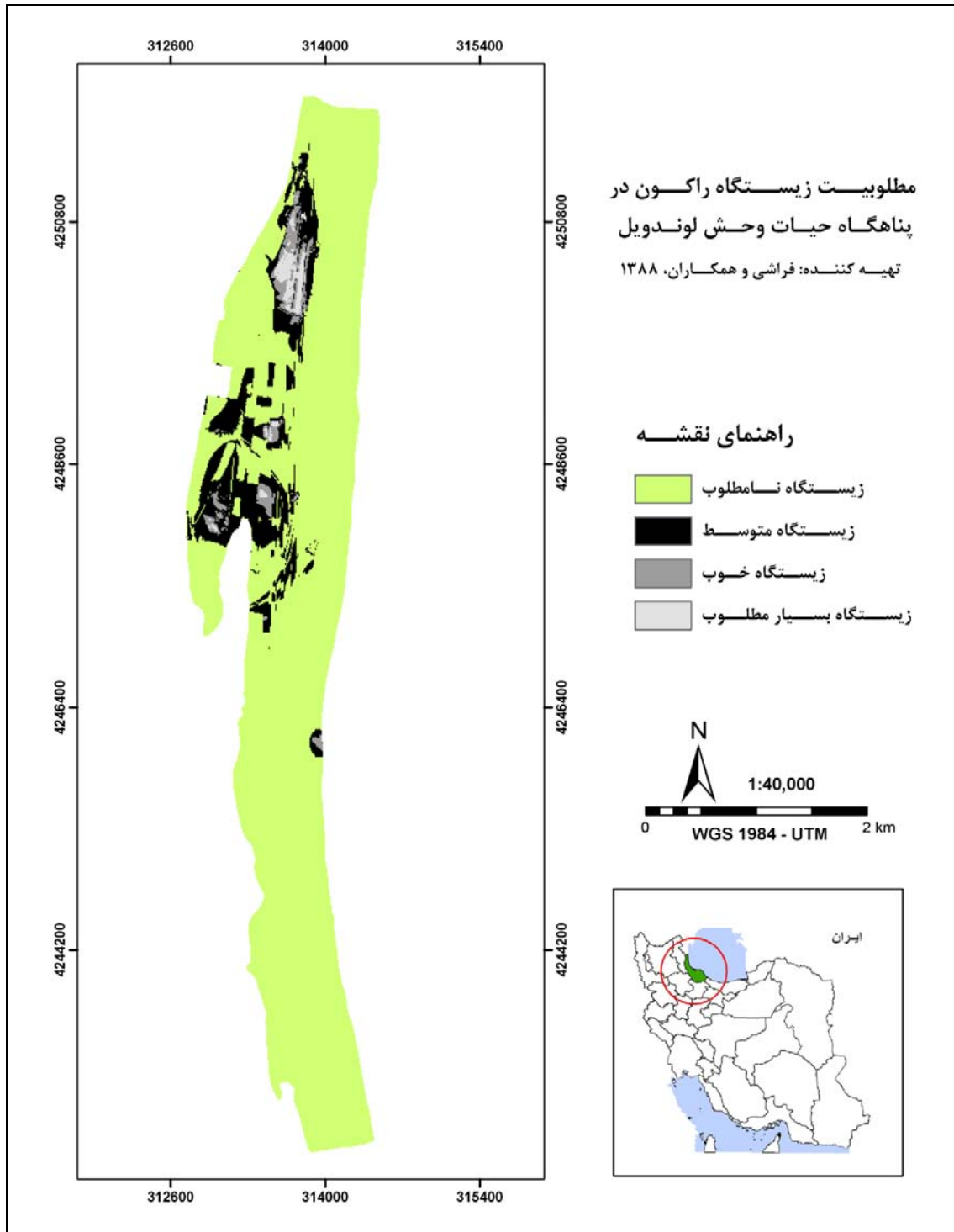
- (Punica)
- (Alnus)
- (Gleditsia)
- (Cynodon)
- (Rubus)
- (Phragmites)
- (Pterocarya)

( )

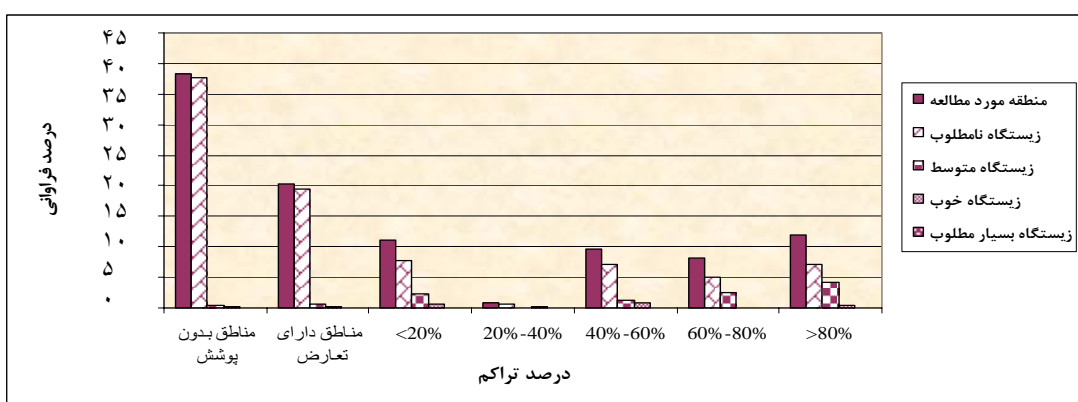
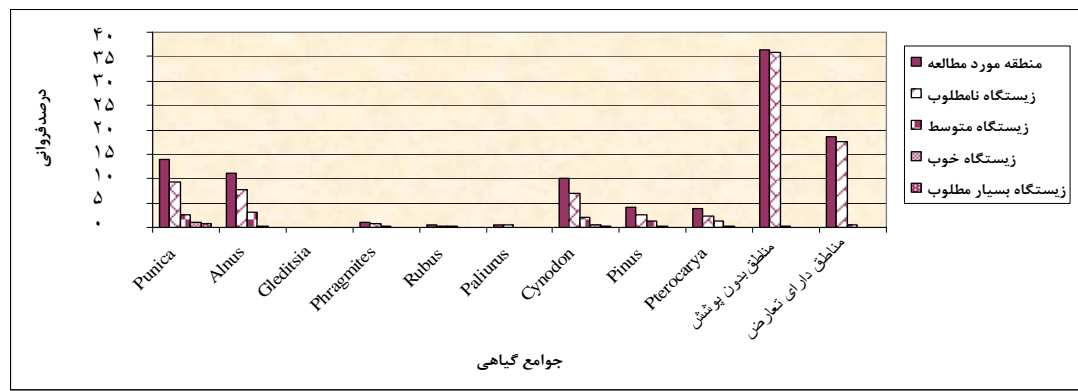
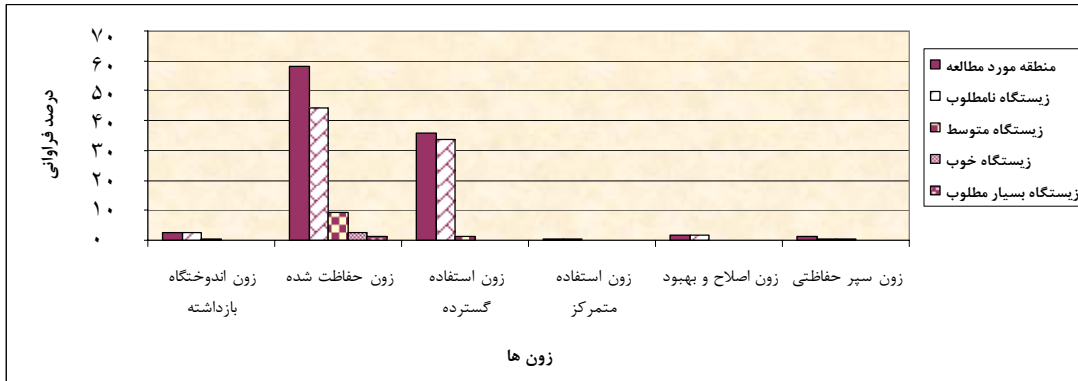


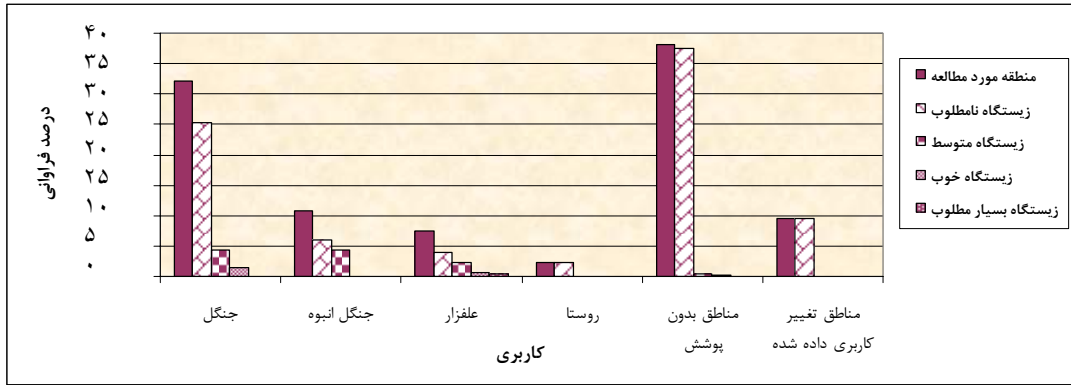
**Biomapper (v. 4)**











ENFA

*Alnus. Pterocarya. Pinus.*

(2007)Wilson and NielsenK

-(Ikeda *et al.*, 2004)

(*Punica.*)

ENFA

(*Cynodon.*)

(*Alnus.*)

(*Pterocarya.*)

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## **Raccoon (*Procyon lotor*) Non- native and invasive species habitat suitability modeling by Ecological Niche Factor Analysis method in Lavandevil wildlife refuge**

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### **Abstract**

Raccoon is a native species to North and Central America. At present, it is an invasive species in many countries such as Japan, Germany, Russia and Iran. Raccoon was observed for the first time in Gilan province in Iran in 1991. This research was employed Ecological Niche Factor Analysis (ENFA) method to model habitat selection of Raccoon in Lavandevil wildlife refuge. The results showed that this species habitat is located mainly in Punica plant communities with densities more than 40%. They also placed in the protected zone, which can be a major threat to biodiversity in Lavandevil wildlife refuge. In addition, results showed that the species tend to be in marginal habitats and has low tolerance to environmental variations. Due to biological and geographical conditions, there is a possibility of invasion to many habitats of Gilan province.

**Keyword:** Raccoon, Non-native, ENFA, Lavandevil, Habitat suitability modeling, Ecological Niche Factor Analysis