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(E-mail: Javad\_Eshagh@yahoo.com)

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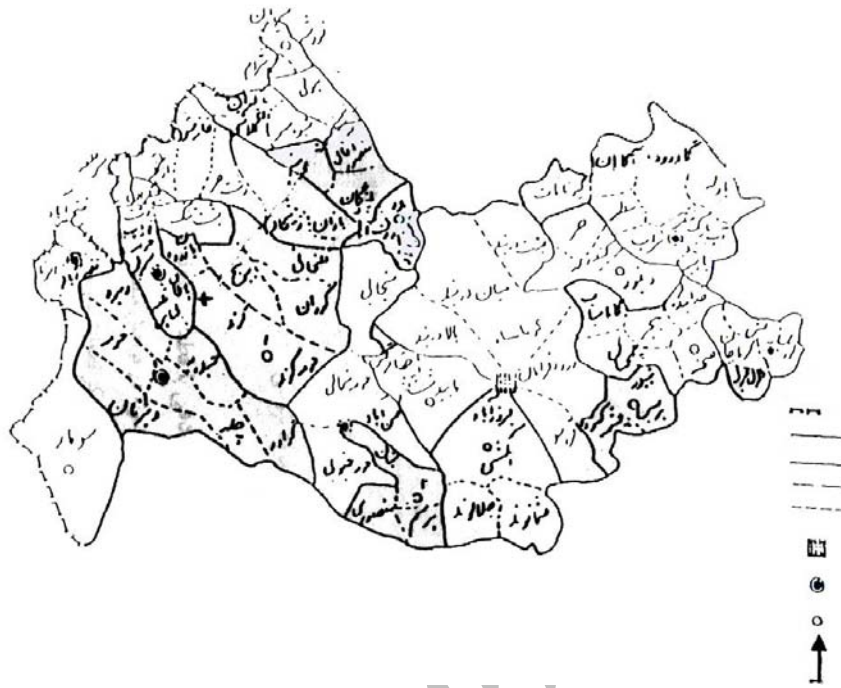
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*(Quercus persicum)*

*(Cerasus microcarpa)*

*(Acer cinerascens)*

*(Ceratogonum aronia)*



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$$CC = \frac{CD_1 \times CD_2 \times \pi}{4}$$

m<sup>2</sup> : (Crown Cover) CC

: (Crown Diameter) CD<sub>1</sub>, CD<sub>2</sub>

m

$$B.A = \frac{\sum_{i=1}^k p_i^2}{12/56}$$

(Basal area) : B.A

cm<sup>2</sup>

cm

: Pi

: K

$$\mu = \frac{\sum_{i=1}^N x_i}{N}$$

: (μ)

: X<sub>i</sub>

: N

$$\delta = \pm \sqrt{\frac{\sum_{i=1}^N (x_i - \mu)^2}{N}}$$

: δ

$$CV = \frac{\delta}{\mu}$$

: CV

:cv%

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$$

:  $\bar{X}$

:  $X_i$

: n

$$S_x = \pm \sqrt{\frac{\sum_{i=1}^n X_i^2 - \frac{\left(\sum_{i=1}^n X_i\right)^2}{n}}{n-1}}$$

:  $S_x$

$$S_{\bar{x}} = \pm \frac{S_x}{\sqrt{n}} \left( \frac{N-n}{N} \right)$$

:  $S_{\bar{x}}$

: N

$$\%S_{\bar{x}} = \pm \frac{S_{\bar{x}}}{\bar{X}} \times 100$$

:  $\%S_{\bar{x}}$

$$E = \pm t \cdot S_{\bar{x}}$$

: E

$$\%E = \frac{E \times 100}{\bar{X}}$$

: %E

$$cv = \frac{S_x}{\bar{X}}$$

: cv

$$cv\% = \frac{S_x}{\bar{X}} \times 100$$

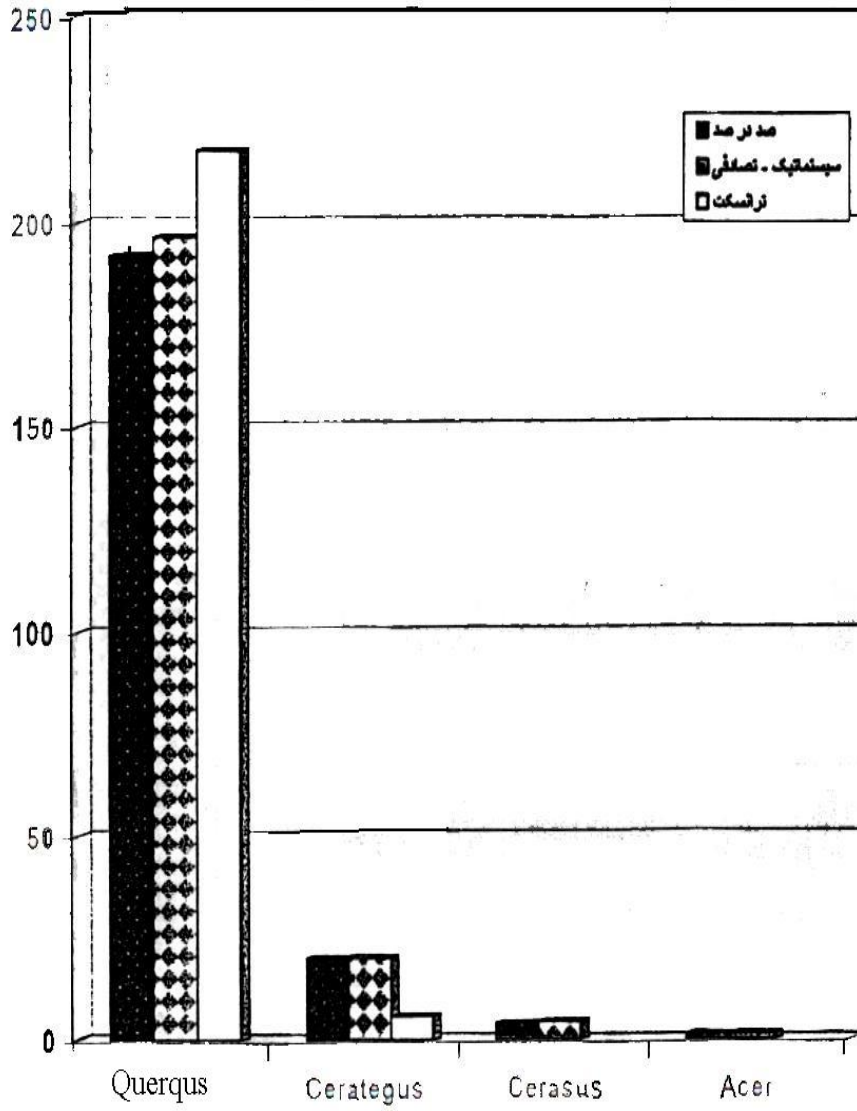
$$N = \frac{10000}{\pi \times \bar{a}^2 / 4}, \quad CC = \frac{\overline{CC} \times 10000}{\pi \times \bar{a}^2 / 4}, \quad BA = \frac{\overline{BA} \times 10000}{\pi \times \bar{a}^2 / 4}$$

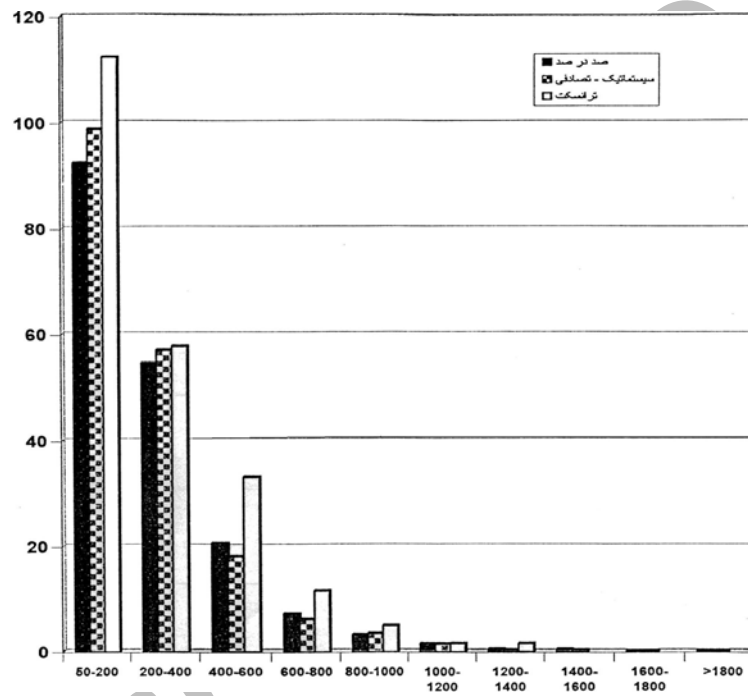
:N  
 cm<sup>2</sup> :BA  
 cm<sup>2</sup> :BA  
 m<sup>2</sup> :BA  
 :BA  
 :CC  
 :CC

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$$\bar{a} = \frac{\sum_{i=1}^n a_i}{n}$$

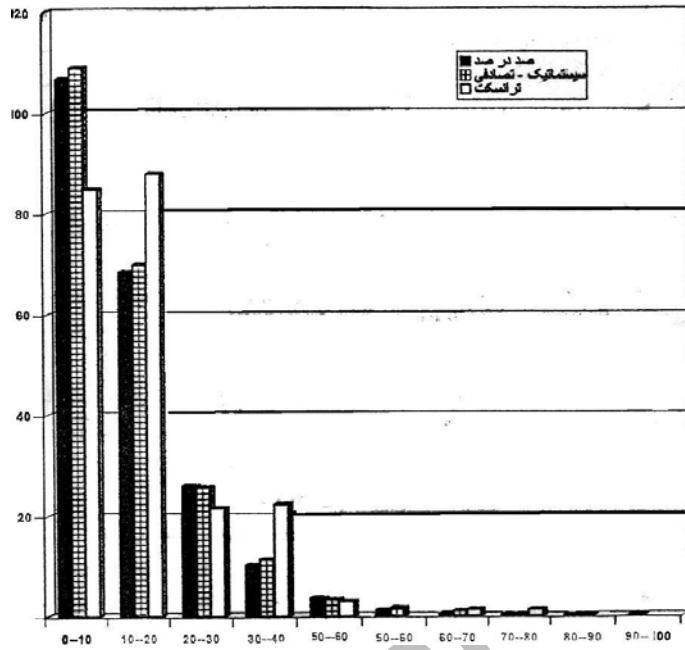
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	N			
	$S_n$			
	CV		/	
	CV%		% /	%
	$S_{\bar{n}}$		/	/
	$S_{\bar{n}}\%$		% /	% /
	E		/	/
	E%		% /	% /
	$\bar{C}\bar{C}$			/
	$S_{cc}$		/	/
	CV	/	/	/
	CV%	% /	% /	% /
	$S_{c\bar{c}}$		/	/
	$S_{c\bar{c}}\%$		% /	% /
	E		/	/
	E%		< <	/ < <
	$\bar{B}\bar{A}$	/	/	/
	$S_{BA}$	/	/	/
	CV	/	/	/
	CV%	%	% /	% /
	$S_{\bar{B}\bar{A}}$		/	/
	$S_{\bar{B}\bar{A}}\%$		% /	% /
	E		/	/
	E%		/ < / < /	/ < / < /
			% /	% /
			/	

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$H_0:$

$(D_{max})$

$H_1:$

$(D_t)$

:

$H_0 \quad H_1 \quad D_t > D_{max} \quad H_1 \quad D_t < D_{max}$

.( ):

$D_t$	$D_{max}$	$D_t$	$D_{max}$	
/	/	/	/	
/	/	/	/	

$D_{max}$

$H_0$

$D_t$

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$(E\%)^2 \times T$

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## A Comparison of Randomized-Systematic Sampling with Circle Shape Plot and Transect Method, Based on Precision and Cost, (Case Study in Sorkhedizeh of Kermanshah)

J.E. Nimvari<sup>1</sup>

M. Zobeiri<sup>2</sup>

H. Sobhani<sup>3</sup>

H. P. Zangeneh<sup>4</sup>

### Abstract

To determine a suitable method, based on precision and cost, of inventory in Western oak forests, a random-systematic sampling with circle shape (already used, in the region) as well as transect method (recommended method in these kinds of forests) were selected for comparison. Parameters evaluated were number per hectare, crown cover and basal area (suitable parameters for these forest types).

Considering all the sampling factors, a grid of 100×100 m and plot areas of 2000m<sup>2</sup> were determined for random-systematic sampling. Length of transect was determined as 50m in transect method.

To compare the results of these two sampling methods with the real population statistical parameters, a 100% inventory was taken over a 37.03-hectare area while using both methods over the same area.

The results show that the population mean was similar to those of samplings for all parameters, the means being within the range of confidence intervals. However in both sampling methods and in all cases, the inventory errors were greater than those at the acceptable level (10%).

To compare the related costs, the total man-hour employed in each method was evaluated. Total time used in transect method was 714 minutes and in random-systematic method it was 3027.5 minutes.

With respect to precision, random-systematic sampling with circle shape plots is of less error than transect method in all cases.

To precisely evaluate the two methods, the product of E<sup>2</sup> (Square of sampling error) times T (total inventory time) was used. This coefficient was less in transect method than in random-systematic sampling with circle shape plots in all cases.

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