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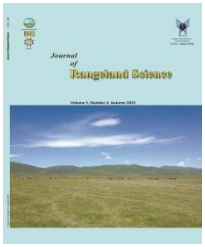

Research and Full Length Article:

Estimating Conservation Value of "Dashtenaze Sari" Wildlife Refuge, and Factors Affecting the Willingness to Pay for Site Conservation

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Abstract. Forests and rangelands are the most important natural ecosystems which provide many economic benefits to the society due to their biodiversity and ecological functionalities. Dashtenaz wildlife refuge, Sari, is a sylvan region, covering 55 ha of rangeland with abundant diversity, is refuge of an endangered species of deer called *Dama mesopotamica*. In this study, Contingent Valuation Method (CVM) and dichotomous choice were used to estimate the conservation value of this region in 2014. Moreover, the Logit regression model has been used to calculate individual's Willingness to Pay (WTP), and parameters have been estimated based on maximum likelihood method. Firstly 35 questionnaires were distributed among the sample members. Validity and reliability of questionnaire were examined by experts and Cronbach`s Alpha test (0.84), respectively. Cochrane formula and random sampling method were used to estimate the sample size. Then, 429 questionnaires were selected in the cities surrounding rangeland (Sari, Behshahr, Miandorood, and Neka). Results showed that 77% of respondents were willing to pay for conserving the rangeland. On the other hand, variables such as bid (the amount of money proposed to respondents to pay for conserving rangeland), monthly income, level of responsibility, financial capability, environmental orientations, the number of visits and educations, had significant impact on individual's WTP for area conservation at 1 to 10 percent level. In addition, per capita WTP for conserving Dashtenaze Sari has been calculated about 0.3 $ monthly and the annual value of Dashtenaze Sari per hectare was 18125 $.

Key words: "Dashtenaze Sari" wildlife refuge, Conservation value, Willingness to pay, Contingent valuation method, Logit model

Introduction

Natural ecosystems particularly rangelands provide many direct or indirect benefits and services to human societies so that life would be impossible without them. These services include the food chain, climate adjustment, control and stabilization of soil erosion, shelter, and genetic resources etc., (Jouri *et al.*, 2011). The destruction of yearly 1% of tropical forests and rangelands would result the loss of 1 to 10% of the species over the next 25 years in the future (Barbault & Sastrapradj, 1995). According to the United Nations Development Program (UNDP) report, 9% of all species in Iran and 12% of the world species were becoming extinct (UNDP, 2011). In 2009, FAO reported that the total area of Caspian forests of Iran was about 1874 thousand ha from which 129.3 thousand ha have been destroyed, containing 7% of the whole forests and rangelands of this area. Excessive lumber harvesting, false grazing, mining, fuel wood collection, pests and diseases have been identified as the main factors of such terrible destruction respectively (FAO, 2009).

Environmental economists divided the economic value of environmental resources into two groups; consumptive and non-consumptive values. Consumptive value is derived from actual consumption. Non-consumptive value is actually the value of conservation.

Public payments are made to conserve natural resources for three reasons:

1. In order to conserve them for future use because there is no other reliable alternative, so the destructive effects would be irreplaceable, that is called "Option Value".
2. Sometimes people tend to conserve resources for future generations. In other words the use of future generations is worthwhile, that is called "Bequest Value".
3. Many citizens have also charitable desire to conserve the environment including rangelands, not for their own use or interest. In fact, a natural resource is valuable by itself regardless of its benefits to human being that is called "Existence Value", (Pearce & Pearce, 2001).

Awareness of destructive effects of rangelands would increase the incentive to conserve them. In addition, there is an urgent need to consider the non-marketable, long term and intangible effects of rangeland on human society. Hence, regular assessment of non-market benefits of rangelands is essential for policy making and planning decisions.

Many studies have been carried out about evaluating conservational values of biological environments by various methods, considering mainly recreational values. Lehtonen *et al.* (2003) estimated WTP of Finnish families for rangeland and forest conservation between 60 to 233 euros annually. Sattout *et al.* (2007) calculated the difference between WTP of those people who use ancient cedar forests and rangelands in Lebanon and those who do not for conserving it to be $20 per household.

Ojeda *et al.* (2008) studied the economic valuation of sustainable environmental services in Delta River. Their results indicated that households were willing to pay 73 pesos monthly for rangeland conservation. Jankju *et al.* (2011) studied life form and chorology of winter and rural range plants in the Northern Khorasan province, Iran. The result of their study showed that the dominance of Hemicryptophytes and Therophytes, as well as vast distribution of Chamaephytes, can be referred to the simultaneous effects of climate fluctuations and livestock grazing on the flora of winter and rural rangelands in studied region. Rahimi (2011) estimated values of forest recreation parks and identified factors influencing willingness to pay in Bonab Arsanjan, Iran. Results showed that the average WTP of tourist was 0.318 $, while recreational value per

hectare was 290 $. Sahabi *et al.* (2012) estimated recreational value of Jajroud area, Tehran province and determined factors affecting the visitors` WTP by using Contingent Valuation Method. Their results indicated that more than 70% of respondents were willing to pay for recreational values of Jajroud area. In addition, the results of logit model presented that the variables of bid (the amount of money proposed to respondents to pay for conserving rangeland), age and size of family had negative effects on individuals' WTP, while the variables of education, income, area attractiveness and individual concerns of environment had significant positive effects on WTP. Moreover, the optimum bid was about 0.17 $ and the annual recreational value of region was 143437 $. Bing *et al.* (2013) estimated WTP for Tourism Eco-Compensation in Changbai Mountain Nature Reserve. Results demonstrated that WTP of tourists was 6.26 times higher than local residents. Bernues *et al.* (2014) estimated per capita economic value of mountain agro-ecosystems (mostly grazing systems) in Euro-Mediterranean regions to be 120 €. About 50% of total WTP was appropriated to the prevention of forest fires among general population as a key ecosystem service delivered by intended agro-ecosystems. Dashtenaz wildlife refuge is the homeland of 22 animal species including four species of amphibians (frogs and toads types), five species of reptiles (such as turtles, land Tropiocolotes, lizards), six species of mammals (besides *Dama mesopotamica*, two species of bats, European hedgehogs, weasels and the brown rat) and seven species of birds (e.g. Kites, Common Buzzards, two species of cuckoo, and Kestrels). It has been also considered as a haven for breeding and rearing of endangered animal species Persian fallow *Dama mesopotamica* since 1964, and it is one of the most important areas for conserving endangered animal species at he moment (Karami, 1993). Proper management of conservation in this rangeland is very prominent from an international perspective as well as its national importance. According to above mentioned issues and regarding economical and environmental importance of Dashtenaz wildlife refuge as one of the most prominent rangelands of Mazandaran province, this study aims to calculate WTP of individuals for conserving this rangeland and consequently to estimate it's total conservation value. For this reason, Contingent Valuation Method as our methodology has been comprehensively explained below.

Materials and Methods

Dashtenaz wildlife refuge is one of the few survivors of Caspian rangelands located in the northeastern city of Sari in Mazandaran province (longitude 36˚41′50″ N and latitude 53˚12′18″ E) covering an area of over 55 h at an altitude of 10 m above sea level. It also covers an area of considerable biodiversity, such as climber shrub species, trees and shrubs as well as herbaceous perennial, and its vegetation is mostly plain old bushes with low density. Since the Contingent Valuation Method (CVM) is the only method to determine the conservation value of natural resources (Venkatachalam, 2004), this method was used to estimate the conservation value of the region in this study. To measure the" willingness to pay" in CV method, the Double-Bounded Dichotomous was used in which the interview is put in a hypothetical market situation and asked to answer to the proposed price by Yes or No answers. If the answer to the proposed price is yes, then, they are proposed by a higher price. If the answer is No, then the lower price is proposed. After determining the scope and sampling to provide the questionnaire, scenario was designed for getting information required to perform the valuation. While filling

questionnaires, the hypothetical market was introduced to respondents and "willingness to pay" values were obtained using the appropriate payment and suitable extraction method, (Mitchell and Carson, 1989). Logit or Probit models were used to estimate these functions. The binary questionnaire format has a dependent variable with a binary option that requires a qualitative model of choice. Usually logit and probit regression models are used for qualitative selection methods. The results of both models are not different, but the logit model will be used to facilitate the calculations. If the logit model is used to investigate the effect of different explanatory variables on the level of WTP, the cumulative probability distribution of logit (P_i) is as follows (Equation 1) (Greene, 2002):

$$P_i = \frac{1}{(1+\exp(-CX))} \quad \text{(Equation 1)}$$

Where, X is the vector of explanatory or independent variables, C is the vector of estimated parameters and "exp" represents "expectancy function". Logit model parameters are estimated using Maximum Likelihood technique which is the most popular method to estimate logit models.

Estimating the expected value of WTP

Therefore, following formula has been used in this study to calculate the expected willingness to pay as it is shown in Equation 2 (Whit, 2006):

$$E(WTP) = \int_0^{B_{Max}} \frac{1}{1+\exp\{-(\alpha^* + C_2 B)\}} dB \quad \text{(Equation 2)}$$

In the above equation, α^* is the adjusted interception that is added by economic - social characteristics to the interception. C2 is also the estimated coefficient of bid variable in logit model. E, B and dB represent "Expected value", "Bid" and "differencing Bid" respectively.

Logit models which can be estimated by linear and logarithmic-linear models have been used in this study because of the ease of calculation. SHAZAM a comprehensive econometrics and statistics package for estimating, testing, simulating and forecasting many types of econometrics and statistical models and Excel software were used for statistical analysis and estimating the parameters of logit model. In this study, firstly 35 questionnaires were distributed among the sample members in 2014. Validity of questionnaire was approved by some experts in this field and reliability of questionnaire was tested by Cronbach`s Alpha coefficient (0.84). Since it was above 0.7, its reliability was accepted, too. Cochrane formula and Random Sampling method were used to estimate the sample size. So, 500 questionnaires were completed by the adult citizens (above 18 years of age) of cities surrounding rangeland (Behshahr, Sari, Miandorood, and Neka). After the completion of questionnaires, 71 of them were distinguished as disqualified and finally 429 questionnaires were accepted for estimating the conservation value of intended region.

Results and Discussion

The questionnaire designed in this paper had 4 parts; as follows:

1) Socio - economic variables of respondents
2) Respondents orientations
3) Ppublic information and knowledge of respondents about intended region
4) Respondents WTP towards proposed bids

The summary of economic- social characteristics of the respondents that included questions about gender, age, income, education, household size, place of residence, occupation, membership in environmental organizations and number of visits of Dashtenaze Sari is presented in Table 1. This table represents descriptive statistics including the mean, standard deviation, maximum and minimum figures for each variable.

Table 1. Descriptive statistics of respondents` socio- economic variables

Variable	Variable Type	Mean	Standard Deviation	Minimum	Maximum
Age (year)	numeric	36.56	13.15	18	81
Monthly income ($)	numeric	640.3	176.25	212.5	1562.3
Household size	numeric	3.92	1.28	1	7
Gender	ordinal	0.41	0.49	0	1
Education (year)	numeric	15	3.28	0	22
Membership in environmental organizations	numeric	0.05	0.22	0	1
Number of visits	nominal	1.24	2.71	0	50

As it is shown in Table 1, the average age of respondents was 36.56 with minimum and maximum of 18 and 81 respectively. The average monthly income of respondents was also about 640 $ with minimum and maximum of 212 and 1562 $ respectively. The average household size of respondents was about 4 with minimum and maximum of 1 and 7 respectively. This table also shows that most respondents had higher education degree while their number of visits from studied rangeland varied from 0 up to 50 times with the average of 1.24.

The second part of questionnaire evaluates the effect of "respondents orientations" on "willingness to pay" for rangeland conservation. Since the demand for environmental resources conservation does not appear through the market, motivations leading to "willingness to pay" would be analyzed by determining the tendencies of individuals, and eventually applied to the model as an effective factor. "Level of responsibility" of respondents were measured using Likert scale by asking this question: "How responsible are you to conserve this rangeland?"

In order to measure "financial capability" of respondents, the degree of their agreement or disagreement were measured by statements expressing as:

1) My family should not pay for the rangeland conservation,
2) My family does not have enough money to pay for the rangeland conservation.

"Developmental orientation" indicator was measured by expression of respondents about their agreement or disagreement with these three statements:

1) Natural ecosystems must be converted to mines to meet the energy requirements of the country,
2) Natural ecosystems must be converted to agricultural fields to provide food for the country,
3) Natural ecosystems must be converted to residential lands for urban developments.

"Environmental orientation" indicator was measured by expression of respondents about agreement or disagreement with these three statements as:

1) Conservation of natural ecosystems is essential for society and future generations use,
2) Conservation of natural ecosystems is essential for my family use,
3) Conservation of natural ecosystems is essential whether I use it or not ".

The agreement level of respondents has been measured using five-option Likert scale. The mean, standard deviation, maximum and minimum for these orientations are shown in Table 2.

Table 2. Statistical results of respondents orientations

Variable	Mean	Standard Deviation	Minimum	Maximum
Level of responsibility	3.17	1.35	1	5
Financial capability	3.00	1.32	1	5
Development orientation	11.01	3.05	3	15
Environmental orientation	12.13	2.02	3	15

In the third part of questioner is, public information and knowledge of respondents about intended region was determined by 8 questions regarding the rangeland location, its importance, its climate, its vegetation, etc. The average score gained by respondents was 3.83. Since it is higher than 3 (mean in Likert scale), public knowledge of respondents are considered to be good.

The fourth section was the most important part of questionnaire, where respondents were asked about their "willingness to pay" and state their opinion about proposed bids (the amount of money proposed to respondents).

First, respondents were asked to answer this question: "If the state funding for conservation of rangeland were currently not sufficient, would you like to pay for conservation of Dashtenaz". If their answer is Yes, they would be asked: "Are you willing to pay 0.5 $ of your monthly income to pay for the conservation of Dashtenaz?" If the respondent gives a negative answer to this question, a lower bid (0.3 $) is provided, and if Yes, higher bid (0.6 $) is offered. If the answer to 0.3 $ is also No, an even lower bid (0.2 $) is offered and if the answer to 0.6 $ is Yes, an even higher bid (0.8 $) is offered. Then, this trend continues until the maximum "willingness to pay" will be determined. If the lowest bid was also rejected by the respondent, the reasons for this reluctance to pay will be asked.

As shown in Table 3, 102 out of 429 respondents (23%) were unwillingness to pay to conserve Dashtenaze Sari while others showed some tendencies.

Table 3. Respondents state towards proposed bids ($)

Status Accepting		First Offer	Lower Offer		Upper Offer	
		0.5	0.2	0.3	0.6	0.8
Accepting offer	Frequency	129	94	104	56	20
	Percent	30.07	21.91	24.24	13.05	4.66
Rejection offer	Frequency	300	102	196	73	36
	Percent	69.93	23.78	45.69	17.02	8.39
Sum	Frequency	429	196	300	129	56
	Percent	100	45.69	69.93	30.07	13.05

Results of logit model estimation for calculating conservation value are presented in Table 4. It is observed in the Table that some variables including bid, income, level of responsibility, financial and environmental orientation were entered in model at 1% probability level, while the number of visits and education were entered in the model at 5% and 10%, probability levels, respectively. In contrast, other variables as: gender, age, household size, membership in environmental organizations, and developmental orientation are not significant at all. The estimated coefficient of bid is negative which indicates that as the bid increases, the probability of Yes answer decreases. Socio- economic variables have different signs. Income coefficient is positive, as expected. So, the expected WTP for conserving Dashtenaze Sari increases by an increase in income. The coefficient of age is negative meaning that older respondents have lower tendency to pay than younger ones. The coefficient of education is positive expressing the fact that the level of education increases willingness to pay. As expected, the sign of household size is negative which indicates that larger families have less WTP. All respondents' orientations have positive coefficients meaning that WTP rises by an increase in level of

responsibility, financial capability, environmental and development orientations.

In the logit model, estimated coefficients for explanatory variables cannot be interpreted in terms of quantity. As a result, elasticities and marginal effects are used to interpret the results. The aggregate elasticity of bid variable is -0.257 which indicates that WTP decreases 26% by 1% increase in the bid. Moreover, individuals tend to pay 0.16% more by 1% increase in their monthly income. The marginal effect of monthly income is 0.00005, which means that increasing 1unit of monthly income increases WTP by 0.00005 units. In addition, 1 unit increase in bid, one year increase in age, one member increase in family size, one year increase in education and once more visit per year lead to WTP rise by 0.00003, 0.00023, 0.0012, 0.00195 and 0.0078 units respectively. Gender coefficient is also significant showing that women are willing to pay 0.009% more than men. Membership in environmental organizations also raises WTP by 0.33%. Finally, WTP would increase by 0.0012, 0.0064, 0.0096 and 0.013 percentage by a unit increase in respondents orientations including developmental and environmental orientations, level of responsibility and financial capability respectively.

The likelihood ratio test statistic is nearly 306, ($P<0.01$) which indicates that the regression model is valid. The significance of this statistic means that the overall model has been significant. Percentage of right predictions is about 93% meaning that 93% of WTP changes are explained by explanatory variables considered in the model (Table 4).

Table 4. Result of logit model for estimating conservation value

Variable	Coefficient	T Value	P Value	Aggregate Elasticity	Marginal Effect
Constant	-1.41	0.62	0.52	-0.793	
Bid	-0.0023	-4.95**	0.00	-0.257	-0.00003
Gender	0.61	1.39	0.16	0.019	0.00857
Age	-0.01	-0.92	0.35	-0.04	-0.00023
Education	0.13	1.69	0.09	0.14	0.00195
Number of visits	0.55	2.31*	0.02	0.03	0.00776
Household size	-0.08	-0.47	0.63	-0.02	-0.00122
Monthly income	0.003	3.61**	0.00	0.15	0.00005
Membership in environmental organizations	23.27	0.002	0.99	0.000	0.33175
Level of responsibility	0.68	3.53**	0.00	0.12	0.00960
Financial capability	0.89	3.91**	0.00	0.16	0.01255
Developmental orientation	0.08	1.30	0.19	0.07	0.00123
Environmental orientation	0.45	3.88**	0.00	0.42	0.00643
Total observations= 429	Likelihood Ratio Tes = 306.268				
Observations at one= 327	Prob (L.R Statistic)= 0.00				
Observations at zero= 102	Percentage of Right Predictions= 0.927				
Log Likelihood= -82.167	McFadden R^2= 0.650				
Log Likelihood (0)= -235.30	Scale Factor= 0.013				

* and **=Significant at 5% and 1% probability level

Calculating the expected value of WTP

The expected value of WTP per household using parameters estimated in the range of zero up to maximum bid (0.8 $) is obtained in Equation 3:

$$\int_0^{25000} \frac{1}{1+exp\{-(25.64775-0.00233X)\}} = 11007.6$$

(Equation 3)

In the above equation, sum of coefficients calculated in logit model (except for bid coefficient) is 25.64775. Bid coefficient is also -0.00233. Calculating integral in equation 3, monthly WTP for families has been obtained to be 0.34 $. As a result, annual conservation value of Dashtenaze Sari for each household has been achieved about 4.1 $. Considering 4 people in an average family (Statistical

Institute of Iran, annual report, 2011), the total conservation value of Dashtenaz Sari is about 996875 $. Considering also the region area (55 ha), conservation value per hectare is 18125 $, which is of course a remarkable figure.

Conclusion

This study aimed to estimate the conservation value of Dashtenaze Sari rangeland and to study factors affecting "Willingness to pay" of individuals. For this reason, the Contingent Valuation Method, Double-Bounded Dichotomous questionnaire and Logit model have been used. Results show that monthly WTP per household is about 0.34$ for conserving the rangeland. Results also showed that the chosen sample has fairly good knowledge about natural resources and biological species of this region and their importance so that they tend to pay considerably for conservation of intended rangeland. Therefore, policymakers should pay more attention to conservation of Dashtenaze Sari rangeland. Since income and educational level are important factors affecting WTP in this study, all measures taken by government to lower the poverty line and develop public education would prevent further destruction of these natural resources. Environmental orientations and responsibility level of individuals for conserving Dashtenaze Sari are also effective factors on WTP. So, this study finally suggests that government ought to consider plans and policies which promote cultural beliefs about environmental values and natural resources conservation in the society.

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Literature Cited

Barbault, R. and Sastrapradja, S. D., 1995. Generation, maintenance and loss of biodiversity. Heywood, V. H. & Watson, R. T. (Eds.) *Global Biodiversity Assessment*. Cambridge University Press: 193-274.

Bernués, A., Tamara Rodríguez-Ortega, T., Raimon Ripoll-Bosch, R. and Frode Alfnes, F., 2014. Socio-Cultural and economic valuation of ecosystem services provided by Mediterranean mountain agro ecosystems. *Regional Environmental Change*. 14:1269-1289

Bing, Zh., Hanli, Sh., Pengwei, W., Jingbo, J., 2013. Willingness to pay for tourism eco-compensation in Changbai Mountain Nature Reserve. *Forest Resources Management*, 11: 68-75

Food and Agriculture Organization, (FAO), 2009. Case studies on measuring and assessing forest degration: Measuring and monitoring forest degration through national forest monitoring assessment.

Greene, W. H., 2002. Econometric analysis. Fifth edition, Prentice Hall.

Jankju, M., Mellati, F., Atashgahi, Z., 2011. Flora, life form and chorology of winter and rural range plants in the Northern Khorasan Province, Iran. *Jour., Rangeland Science*, 1(4): 269-284.

Jouri, M., Askarizadeh, H., Rahimi, D., Mahdavi, V., 2011. "Systemic Management on Mountainous Rangeland Ecosystem, Case Study: The Javaherdeh Rangeland of Ramsar". *Jour., Rangeland Science*, 1(4): 38-54

Karami, M., 1993. Situation of Persian fallow deer in Iran. Int. Studbook of Persian fallow deer, Berlin, Germany.

Mitchell, R. C. and Carson, R. T., 1989. Using surveys to value public goods: the contingent valuation method. Washington, DC: Resources for the Future.

Lehtonen, E., Kuuluvainen, J., Pouta, E., Rekola, M. and Li, C., 2003. Non-market benefits of forest conservation in southern Finland. *Environmental Science and Policy*. 6: 195-204.

Ojeda, M. O., Mayer, A. S. and Solomon, B. D., 2008. Economic valuation of environmental services sustained by water flows in the Yaqui River Delta. *Ecological Economics*, 1: 155-166.

Pearce, D. W. and Pearce, C. JT., 2001. The value of forest ecosystem. A report to the secretariat convention on biological diversity. Pepper, H. J., 1974. *The Persian fallow deer*. Orix 7: 291-294.

Rahimi, M., 2011. Estimated value of forest recreation parks and identify factors influencing willingness to pay Bonab Arsanjan visitors (Tourists). *Australian Jour., Basic and Applied Sciences*, 5(12): 1802-1805. (In Persian).

Sattout, E. J., Talhouk, S. N. and Caligari, P. D. S., 2007. Economic value of cedar relics in Lebanon: An application of contingent valuation method for conservation. *Ecological Economics*. 61: 315-322.

United Nations Development Program (UNDP), 2011. Human development report, 2011.

Sahabi, B., Hajian, M. and Javaheri, B., 2012. Assessment of factors affecting on the visitors' WTP and evaluating recreational importance of Jajroud Area, *Economic Modeling*, 6(1); 111-126. (In Persian).

Venkatachalam, L., 2004. The contingent valuation method: a review, environmental impact assessment review. *Elsevier*, 24(1): 89–124.

Whit, P., 2006. Public preferences and willingness to pay nature conservation in the North York Moors National park. *Jour., Environmental Management*, 55: 1-13.

تخمین ارزش حفاظتی پناهگاه حیات وحش دشت ناز ساری و عوامل موثر بر تمایل به پرداخت افراد برای حفاظت منطقه

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چکیده. مراتع و جنگلها بخاطر تنوع زیستی موجود در آن‌ها و عملکردهای اکولوژیکی که دارا می‌باشند، از جمله مهم‌ترین اکوسیستم‌های طبیعی به‌شمار رفته و منافع اقتصادی زیادی برای جامعه فراهم می‌کنند. پناهگاه حیات وحش دشت ناز ساری منطقه‌ای جنگلی به وسعت ۵۵ هکتار از مراتع ساری است که دارای تنوع گیاهی فراوانی است و در آن از گونه در حال انقراض گوزن زرد خال‌دار ایرانی نیز محافظت می‌شود. در این مطالعه برای برآورد ارزش حفاظتی منطقه مورد مطالعه از روش ارزش‌گذاری مشروط و پرسشنامه دوگانه دو بعدی در سالهای ۱۳۹۳-۱۳۹۲ استفاده شده است. همچنین برای اندازه‌گیری میزان تمایل به پرداخت افراد از مدل رگرسیونی لاجیت استفاده گردیده و پارامترهای این مدل بر اساس روش حداکثر راستنمائی، برآورد شدند. ابتدا تعداد ۳۵ پرسشنامه به عنوان پیش آزمون در میان افراد جامعه تکمیل گردید. روایی پرسشنامه توسط اساتید مربوطه و پایایی آن توسط آزمون آلفای کرونباخ (۰/۸۴) بررسی گردید. همچنین جهت برآورد حجم نمونه، از فرمول کوکران و جهت انتخاب اعضای نمونه، از روش تصادفی ساده استفاده گردید. سپس ۴۲۹ پرسشنامه تهیه و توسط شهروندان شهرهای اطراف منطقه مورد مطالعه (ساری، بهشهر، میان رود و نکا) تکمیل گردید. نتایج تحقیق نشان داد که ۷۷ درصد از پاسخگویان حاضر به پرداخت مبلغی جهت حفاظت از منطقه بوده‌اند. از سوی دیگر متغیرهایی نظیر مبلغ پیشنهادی، درآمد ماهانه، مسئولیت پذیری، توانایی مالی، گرایش‌های محیط زیستی افراد، تعداد دفعات بازدید از پناهگاه و تحصیلات تاثیر معنی داری در سطح ۱ تا ۱۰ درصد بر روی تمایل به پرداخت افراد جهت حفاظت از منطقه دارند. همچنین تمایل به پرداخت هر فرد برای حفاظت از پناهگاه حیات‌وحش دشت ناز ماهیانه مبلغ ۱۱ هزار ریال و ارزش هر هکتار از منطقه سالانه نیز در حدود ۵۷۸ میلیون ریال برآورد شده است.

کلمات کلیدی: پناهگاه حیات وحش دشت ناز ساری، ارزش حفاظتی، تمایل به پرداخت، ارزشگذاری مشروط، مدل لاجیت