

Supplementary Text S1. Survey questions regarding the awareness of the interviewees about land use change, the benefits of nature, importance of ecosystem services (ESs), improvement or degradation of ESs, and the reasons behind changes in ESs.

1. Questions for the awareness of the interviewees about land use change and the benefits of nature

1) Do you believe that the Manas region experiences oasisization? Oasisization is the process of transforming a natural desert into a man-made oasis to meet the requirements of social development.

- Yes No

2) Do you believe that the Manas region experiences urbanization?

- Yes No

3) Are you aware of the benefits of nature in Manas?

- Yes No

2. Awareness of the interviewees about the importance of ESs

The following items are ESs provided by nature in the Manas region. How important are they to you? Please mark your answer on the basis of the importance of various ESs in Table S1.

Table S1. Importance of ESs.

ESs	Scores of ESs importance									
Crop production	<input type="checkbox"/> 0.1	<input type="checkbox"/> 0.2	<input type="checkbox"/> 0.3	<input type="checkbox"/> 0.4	<input type="checkbox"/> 0.5	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.7	<input type="checkbox"/> 0.8	<input type="checkbox"/> 0.9	<input type="checkbox"/> 1
Livestock	<input type="checkbox"/> 0.1	<input type="checkbox"/> 0.2	<input type="checkbox"/> 0.3	<input type="checkbox"/> 0.4	<input type="checkbox"/> 0.5	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.7	<input type="checkbox"/> 0.8	<input type="checkbox"/> 0.9	<input type="checkbox"/> 1
Soil conservation	<input type="checkbox"/> 0.1	<input type="checkbox"/> 0.2	<input type="checkbox"/> 0.3	<input type="checkbox"/> 0.4	<input type="checkbox"/> 0.5	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.7	<input type="checkbox"/> 0.8	<input type="checkbox"/> 0.9	<input type="checkbox"/> 1
Water yield	<input type="checkbox"/> 0.1	<input type="checkbox"/> 0.2	<input type="checkbox"/> 0.3	<input type="checkbox"/> 0.4	<input type="checkbox"/> 0.5	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.7	<input type="checkbox"/> 0.8	<input type="checkbox"/> 0.9	<input type="checkbox"/> 1
Sand fixation	<input type="checkbox"/> 0.1	<input type="checkbox"/> 0.2	<input type="checkbox"/> 0.3	<input type="checkbox"/> 0.4	<input type="checkbox"/> 0.5	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.7	<input type="checkbox"/> 0.8	<input type="checkbox"/> 0.9	<input type="checkbox"/> 1
Carbon sequestration	<input type="checkbox"/> 0.1	<input type="checkbox"/> 0.2	<input type="checkbox"/> 0.3	<input type="checkbox"/> 0.4	<input type="checkbox"/> 0.5	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.7	<input type="checkbox"/> 0.8	<input type="checkbox"/> 0.9	<input type="checkbox"/> 1
Habitat	<input type="checkbox"/> 0.1	<input type="checkbox"/> 0.2	<input type="checkbox"/> 0.3	<input type="checkbox"/> 0.4	<input type="checkbox"/> 0.5	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.7	<input type="checkbox"/> 0.8	<input type="checkbox"/> 0.9	<input type="checkbox"/> 1
Nature landscape recreation	<input type="checkbox"/> 0.1	<input type="checkbox"/> 0.2	<input type="checkbox"/> 0.3	<input type="checkbox"/> 0.4	<input type="checkbox"/> 0.5	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.7	<input type="checkbox"/> 0.8	<input type="checkbox"/> 0.9	<input type="checkbox"/> 1

3. Questions for the cognition of the improvement or degradation of ESs

1) Which ESs do you believe have improved?

- Crop production Livestock Soil conservation Water yield Sand fixation
 Carbon sequestration Habitat Nature landscape recreation

2) Which ESs do you believe have declined?

- Crop production Livestock Soil conservation Water yield Sand fixation
 Carbon sequestration Habitat Nature landscape recreation

4. Cognition of the interviewees about the reasons behind the improvement or degradation of ESs

The following items are reasons behind the changes in ESs. Please mark your answer for each ES change in Table S2.

Table S2. Reasons for the improvement or degradation of ESs.

ESs	Reasons of ES change		
Crop production	<input type="checkbox"/> Land use change	<input type="checkbox"/> Climate change	<input type="checkbox"/> Other reasons
Livestock	<input type="checkbox"/> Land use change	<input type="checkbox"/> Climate change	<input type="checkbox"/> Other reasons
Soil conservation	<input type="checkbox"/> Land use change	<input type="checkbox"/> Climate change	<input type="checkbox"/> Other reasons
Water yield	<input type="checkbox"/> Land use change	<input type="checkbox"/> Climate change	<input type="checkbox"/> Other reasons
Sand fixation	<input type="checkbox"/> Land use change	<input type="checkbox"/> Climate change	<input type="checkbox"/> Other reasons
Carbon sequestration	<input type="checkbox"/> Land use change	<input type="checkbox"/> Climate change	<input type="checkbox"/> Other reasons
Habitat	<input type="checkbox"/> Land use change	<input type="checkbox"/> Climate change	<input type="checkbox"/> Other reasons

Nature landscape recreation Land use change Climate change Other reasons

Table S3. Basic information about the sample points of the questionnaire survey.

ID	Longitude	Latitude	Altitude	Names of the sample points
1	85.25	43.91	2599.77	Antler Bay, Bor Tungge Prairie, Shawan County
2	86.09	43.73	2565.78	Head of Qingshui River
3	86.05	43.81	2283.49	Kazakh Nationality Township of Qingshui River
4	85.79	44.13	804.76	Bor Tungge Township of Shawan County
5	85.39	44.06	1152.44	Dongwan Township of Shawan County
6	86.06	43.98	1143.37	Kensiwate of Manas County
7	85.81	44.30	478.23	143 Group of 8th Division of Xinjiang Production and Construction Corps
8	85.78	44.35	423.76	143 Group of 8th Division of Xinjiang Production and Construction Corps
9	86.01	44.29	467.14	Urban area of Shihezi
10	86.09	44.27	526.25	Urban area of Shihezi
11	86.06	44.39	406.32	Beiquan Township of Shihezi
12	86.10	44.47	388.35	Beiquan Township of Shihezi
13	86.16	44.54	397.18	147 Group of 8th Division of Xinjiang Production and Construction Corps
14	86.15	44.62	370.88	147 Group of 8th Division of Xinjiang Production and Construction Corps
15	85.53	44.67	362.39	121 Group of 8th Division of Xinjiang Production and Construction Corps
16	85.42	44.87	325.86	121 Group of 8th Division of Xinjiang Production and Construction Corps
17	85.53	44.87	329.08	121 Group of 8th Division of Xinjiang Production and Construction Corps
18	86.18	44.91	349.51	148 Group of 8th Division of Xinjiang Production and Construction Corps
19	86.28	44.86	354.66	149 Group of 8th Division of Xinjiang Production and Construction Corps
