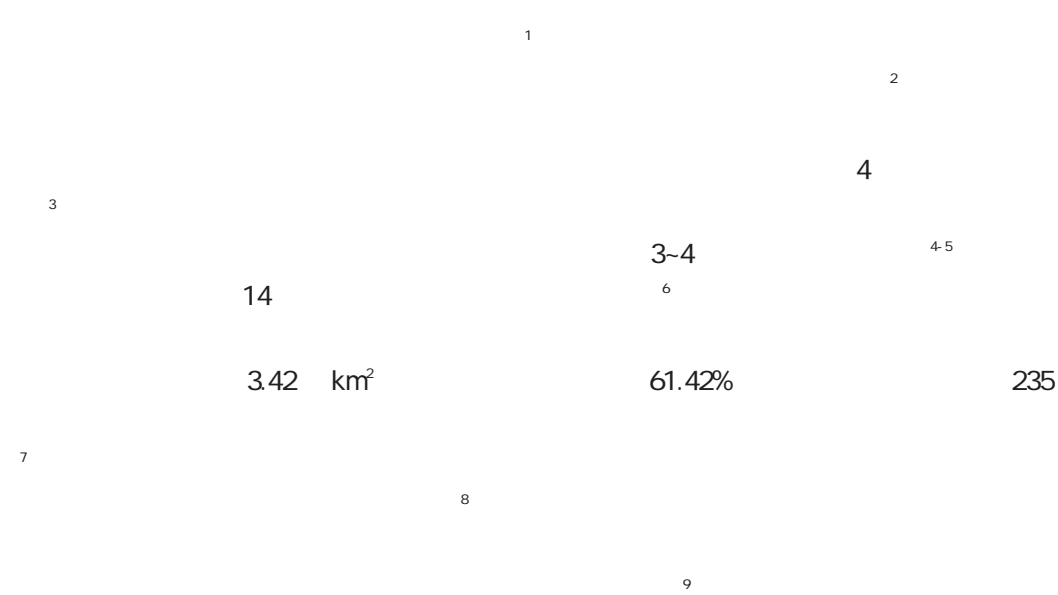




*



4 10

43° 16' 57 N 83° 58' 47 E 1800~2100m
 600~800mm 80~110d 2400~2700h 10 1000h.

Poa pratensis *Agrostis gigantea* *Origanum vulgare* *Dactylis glomerata* 1989
10

3 30m 3 20m×20m cell 4 10
 6 1m×1m 18 54 1m×1m
 4
 12h 65

$$IV = IV = + + /3 \quad 1$$

Shannon-Wiener

$$H = - \sum_{i=1}^s P_i \ln P_i \quad 2$$

Simpson

$$D = 1 - \sum_{i=1}^s \left(\frac{N_i}{N}\right)^2 \quad 3$$

Margalef

$$D_m = \frac{S - 1}{\ln N} \quad 4$$

Pielou

$$J = \frac{H}{\ln S} \quad 5$$

S N N_i i $P_i = \frac{N_i}{N}$ Excel2016 SPSS25

Origin2021

Python3.8 seaborn

257 /m² 4 290 /m² 10 184 /m²

10

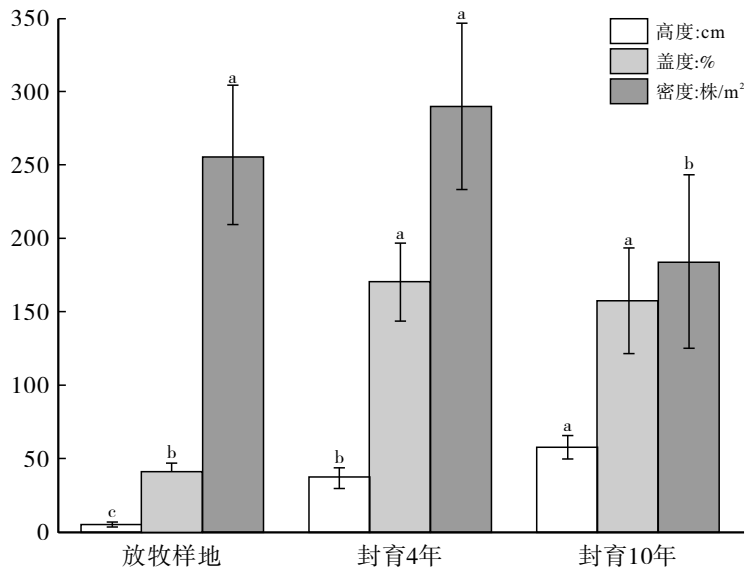
4 4 10

4 4 10 41% 174%

158%

4 4 10 5.7cm 37.4 cm 58cm

4 4 10

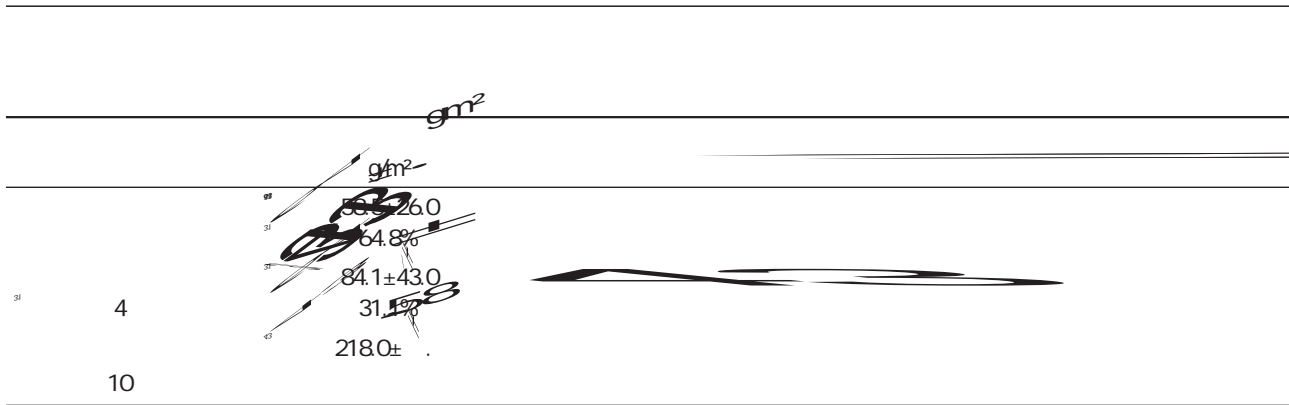


1

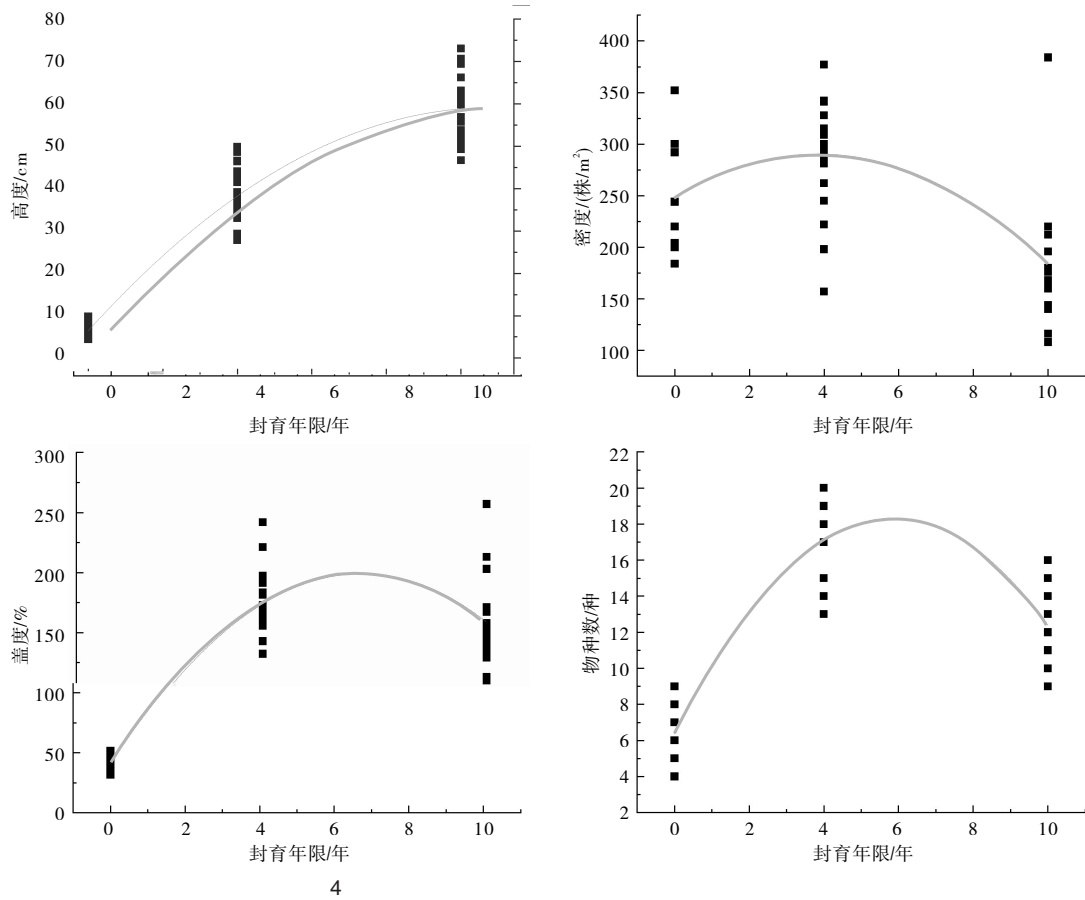
2 Raunkiaer

5

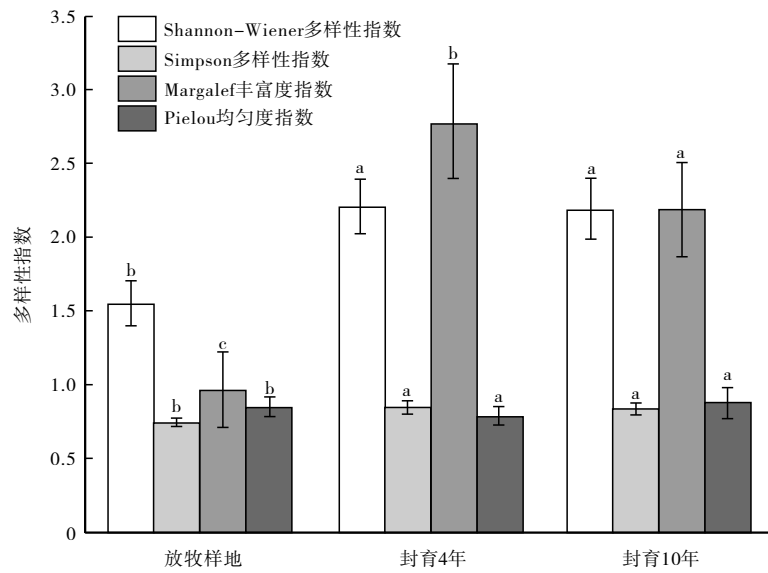
1



<i>Alchemilla tianschanica</i>	21.28		9.90
<i>Achillea millifolium</i>	0.00		12.9
<i>Phalaris arundinaceae</i>	0.00		1.54
<i>Origanum vulgare</i>	0.00		1.39
<i>Geranium pretense</i>	1.61		4.84
<i>Elymus dahuricus</i>	0.00		1.00
<i>Vicia cracca</i>	0.00		0.00
<i>Aconitum leucostomum</i>	2.70		0.25
<i>Ligularia macrophylla</i>	0.00		0.27
<i>Galium verum L. var. trachycarpum DC.</i>	0.00	α	2.23
<i>Fragaria vesca</i>	0.00		7.00
<i>Daucus carota</i>	0.00		1.69
<i>Pedicularis verticillata</i>	0.00		1.42
<i>Taraxacum pseudoalpinum</i>	10.72	β	2.63
<i>Euphorbia pilosa</i>	0.00		0.12
<i>Glossogyne tenuifolia</i>	0.00		0.82
<i>Pyrola calliantha</i>	0.00		4.17
<i>Bupleurum tianschanicum</i>	0.00		0.56
<i>Alopecurus aequalis</i>	2.94		1.96
<i>Erigeron aurantiacus</i>	0.00		3.03
<i>Agrostis gigantea</i>	0.00	α β	0.02
<i>Astragalus iliensis</i>	0.00		0.00
<i>Tulipa iliensis</i>	0.00		0.24
<i>Oxytropis sinkiangensis</i>	0.00		4.69
<i>Filipendula ulmaria</i>	0.00		0.18
<i>Trifolium pratense</i>	0.00	α	00.89
<i>Myosotis alpestris</i>	0.00		1.80
<i>Rumex rechingerianus</i>	0.00		0.32
<i>Trollius dschungaricus</i>	0.39		1.05
<i>Potentilla fragarioides</i>	0.00		
<i>Trifolium repens</i>	21.81		
<i>Sanguisorba officinalis</i>	0.41		
<i>Plantago depressa</i>	4.13		
<i>Parnassia palustris</i>	0.33		
<i>Medicago falcate</i>	0.00		
<i>Capsella bursa-pastoris</i>	0.00		
<i>Cirsium japonicum</i>	0.00		
<i>Carex rigescens</i>	0.00		
<i>Veronica didyma</i>	0.00		
<i>Valeriana fedtschenkoi</i>	0.00		
<i>Lamium album</i>	0.00		
<i>Ranunculus polyanthemus</i>	0.44		



4



5

			4		10	
		12				13
	10	4				
14-15	10		4		16	
						17
				10		10
					18	
		19-20				
21	Cardinale					
	22					
			N	P	23	
		24			N	P
				13		25
		5		10		
			<i>Poa angustifolia</i>	<i>Dactylis glomerata</i>		<i>Vicia cracca</i>
						26-27
					28	
			10		4	
<i>simplex</i>	<i>Aconitum leucostomum</i>		10			29-30
	4					<i>Thalictrum</i>
						<i>Aconitum leucostomum</i>
						10
						<i>Aconitum leucostomum</i>
	<i>Thalictrum simplex</i>					
			20-30cm			
<i>Alchemilla tianschanica</i>		33-35				<i>Taraxacum pseudoalpinum</i>

- Shannon- Wiener
- Simpson Margalef 4 10
- Pielou 10 4 6 10
- Pielou Simpson
- 6-9
- 1 . J . 2023 43 08 3295- 3306
 - 2 . J .
 - 3 2021 44 06 448- 454.
 - 3 WESTOBY M WALKER B W NOY MEIR I. Opportunistic Management for Rangelands Not at Equilibrium J . Journal of Range Management 1989 42 04 :266- 274.
 - 4 . J . 2012 21 03 11- 16
 - 5 . D . 2021.
 - 6 . J . 2008 17 06 1- 8
 - 7 . J . 2007 09 29- 33.
 - 8 . J . 2017 37 05 6
 - 9 . C // . 2003
 - 10 2004 . 2004 4.
 - 10 . J . 2008 03 22- 25.
 - 11 . M . 2001.
 - 12 . J . 2009 24 01 8- 11.
 - 13 . J . 2009 18 03 12- 19.
 - 14 . J . 2023 31 03
 - 15 844- 851.
 - 15 . J . 2018 55 03 556- 563.
 - 16 . J . 2022 46 02 12
 - 17 . J .
 - 18 2022 04 37.
 - 18 . J . 2018 27 06 10
 - 19 . J . 1999 02 5- 9.
 - 20 . J . 2003 05 51- 55.
 - 21 MEISSNER R A FACELLI J M. Effects of Sheep Exclusion on the Soil Seed Bank and Annual Vegetation in Chenopod Shrublands of South Australia J . Journal of Arid Environments 1999 42 02 117- 128.
 - 22 CARDINALE BRADLEY J WRIGHTT et al. Impacts of Plant Diversity on Biomass Production Increase Through Time Because of Species Complementarity J . Proceedings of the National Academy of Sciences of the United States of America 2007 104 46 123- 128.
 - 23

24	.	J .	2016 36 16	5150- 5162
25	.	J .		
	2021 13		91- 96.	
26	.	J .	2015 24 01	21- 30.
27	.	J .	2010 33 03	434- 441.
28	.	J .		
	2021 30 10		15- 25.	
29	.	J .	2022 02	37- 41.
30	.	J .	2023 43 04	27- 35.
31	.	J .	2012 49 07	1334- 1341.
32	.	J .	2021 04	189- 190.
33	.	D .	2006.	
34	.	J .	2010 27 06	32- 37.
35	.	J .	2020 03	81- 82.

The Response of Community Characteristics and Plant Diversity to Enclosure Years in the Nalati Mountain Meadow

*College of Biological Science and Technology Institute of Resources and Ecology Yili Normal University
Yining Xinjiang 835000 China*

A preliminary analysis was conducted on the changes in grassland vegetation community characteristics and species diversity during the natural restoration process of degraded grasslands under enclosure conditions in the Nalati Mountain Nature Reserve of the YILI River Valley. The results showed that as the closure period extended the response of different community characteristics to the closure period varied. The average height and biomass of other community characteristics were significantly higher after 10 years of closure than after 4 years $P<0.05$ and the density was significantly higher after 4 years of closure than after 10 years $P<0.05$. The difference in coverage between 4 years of closure and 10 years was not significant $P>0.05$. The grassland plant community has gradually evolved from uncultivated weeds as the main species to grasses as the main species. With the extension of enclosure time the number of species increased from 15 to 41 in grazing areas and then decreased to 34. The correlation analysis shows that the correlation between community characteristics and enclosure time is height>biomass>coverage>species number>density. Through regression analysis of these community characteristics height density coverage and species number reached their maximum in 9.7 3.9 6.2 and 5.9 years. The diversity index and richness index were the highest in the fourth year of enclosure but the difference in diversity index between 4 and 10 years was not significant $P>0.05$. The difference in richness index between 4 years and 10 years of closure was significant $P<0.05$ and the evenness index was the highest in 10 years of closure and the difference was significant $P<0.05$. Based on comprehensive analysis the optimal enclosure time for Nalati Mountain Meadows is 6~9 years.

Mountain meadow Number of years of confinement Community characteristics Diversity