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Effectiveness of Grassland Protection and Pastoral Area Development under the Grassland Ecological Conservation Subsidy and Reward Policy

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Abstract: In 2011, the Grassland Ecological Conservation Subsidy and Reward Policy (GECSR) was implemented in China. The purpose of implementing the policy was to protect grassland ecosystems, secure the supply of livestock products, and increase the income of herders. Through quantitative research data collection methods, based on analysis and comparison of the effects of the GECSR before and after its implementation in 2011 on grassland ecology, livestock production, and herder incomes on a national scale, this study summarized the effectiveness of the policy and main problems encountered during the policy implementation period and offered suggestions for optimizing the GECSR. The results show that the GECSR has been significantly effective in protecting grassland ecology, regulating livestock production, and safeguarding the livelihoods of pastoralists. Under the existing policies, low subsidy and reward standards caused an increase in the overgrazing rate, livestock production remained the main income source for herders, and a lack of technical support reduced forage and livestock quality, which subsequently reduced the income of herders. In conclusion, the existing policies can be improved by gradually enhancing evaluation standards, considering the balance between livestock grazing and grassland ecology, promoting industrialization of livestock products, and valuing the production skills of herders.

Keywords: grassland policy evaluation and optimization; conservation subsidy and reward policy; grassland ecology; livestock production; life of farmers and herders



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1. Introduction

As one of the most widely distributed terrestrial ecosystems on earth, grasslands cover approximately 20% of the world's total land area. With the increasing degradation of grasslands worldwide, the increasing demand for livestock products and the growing livelihood difficulties of pastoralists, the search for sustainable use of grasslands has become a common goal for pastoralists and policy makers [1–4]. Grasslands are an important ecological resource and means of production that play fundamental and strategic roles in maintaining national ecological security, ensuring agricultural food security, promoting pastoral economic development, and safeguarding the livelihoods of herders. Owing to rapid population growth and increasing demand in pastoral areas since the 1950s, a contradiction between human activities and land conservation has gradually emerged. The imbalance between grassland management and livestock production has continued to cause problems; grasslands have been degraded, soils have become sandy, sustainable production capacity has decreased, ecological functions have been seriously damaged, and the income of herders has been weak. By the end of the last century, more than 90% of the grasslands in China had been degraded to varying degrees, making regional

economic and social development unsustainable, and placing national ecological security under serious threat. The Party Central Committee and the State Council attach great importance to grassland protection and pastoral development. Since 2000, ecological protection and construction projects, such as Beijing–Tianjin sandstorm source control, returning grazing land to grassland, and returning farmland to forest and grassland, have been launched successively in China. The overall trend of rapid deterioration of grassland ecology has slowed down, but the contradiction between grassland management and livestock production has not been fundamentally solved. By 2010, the average overload of natural grassland in 268 pastoral and semi-pastoral counties was still high at 44%. To thoroughly resolve the contradiction between grassland management and livestock production, and reverse grassland degradation, the state issued the Grassland Ecological Conservation Subsidy and Reward Policy (GECSRP) in 2011. The central government invested approximately CNY 20 billion per year in the policy, benefiting 1210.42 million households and 506.63 million herders in 657 counties of 13 provinces (districts). The GECSRP has been implemented for two rounds, with the implementation of a grazing ban area of 80.67 million hm^2 and a grass–livestock balance area of 174 million hm^2 , making 254.67 million hm^2 of grassland rest and recuperation areas, which has achieved very good ecological, economic, and social benefits. The GECSRP is related to agricultural ecological protection, effective supply of livestock products and livelihood protection of farmers and herdsman, which is of great practical significance to guarantee the organic connection between the results of poverty eradication and promotion of rural revitalization strategy, improve the ecological condition of grassland, and promote the income of farmers and herdsman. The GECSRP has become a policy that benefits the Chinese people, funding the largest number of farmers and herdsman in grassland and pastoral areas since the founding of the new China [5].

The implementation of this subsidy policy has attracted wide attention in academic circles and become a hot topic in the field of grassland management. Most studies published in the research literature from 2011 to 2022 have shown that, since the implementation of GECSRP, grassland ecosystems have recovered to varying degrees; the income of farmers and herders and the proportion of transfer income has increased; the mode of production has gradually transitioned from grazing to semi-grazing, semi-shelf feeding, and shelf feeding; and the infrastructure of pastoral areas has continuously improved [6–10]. In a large number of studies, micro-scale research based on the herdsman level is relatively rich, focusing on the behavior, income, willingness, and perceptions of herders after the implementation of the GECSRP. The GECSRP has had an incentive effect on the willingness of herders to reduce livestock, and, to some extent, it regulates their production behavior. Most herdsman adjust the livestock carrying rate by regulating the number of livestock, area of grassland management, and purchase of forage. However, these adjustments have not reached the ideal goal of a grassland–livestock balance. Although herders' perceptions of grassland ecological improvement are generally consistent, overall overload and local severe overload problems still exist, and grassland degradation has not been completely mitigated [11,12]. In addition, from the perspective of herders' income, there is a differentiation phenomenon, and the risk of reducing the income of herders is high. According to the policy design for area compensation, relatively rich farmers and herders are given more ecological compensation funds than poorer farmers and herders, which further increases the income gap between the rich and poor to some extent [13–19]. Studies on the realization of grassland decompression, ecological improvement, and income goals at the herdsman level of micro regulation suggest that the establishment of a long-term mechanism for the GECSRP is necessary to improve and optimize the reward standards. Consequently, there has been a consensus among stakeholders to improve the policy [20–25]. However, at the national scale and macro level, research on policy evaluation, problem discussion, and development of countermeasures for the GECSRP are still relatively lacking, and the research on supporting macro decision making needs to be continuously enriched. Based on the macro data for pastoral and semi-pastoral areas in 13 provinces, this study analyzes

the changes before and after the implementation of the GECSR from the dimensions of ecology, production, and herder life. Further, this study explains the positive effects of the policy since its implementation, analyzes the difficulties encountered during its implementation, and proposes five changes for improving the policy.

2. Materials and Methods

The GECSR mentioned in this study refers to the implementation of a series of subsidy and incentive policies, such as grazing bans, grass–livestock balance subsidies, and herder production material subsidies through special funds from the central government. This study focused on 13 provinces (regions) in China that were involved in grassland ecological protection subsidy incentive policies: Inner Mongolia, Xinjiang (including Xinjiang Corps), Tibet, Qinghai, Sichuan, Gansu, Ningxia, Yunnan, Hebei, Shanxi, Liaoning, Jilin, and Heilongjiang (including Heilongjiang reclamation). The representative indicators of ecology, production, and livelihood before and after the implementation of the subsidy policy were compared, and the effects of the policy implementation were analyzed. The grassland vegetation status, livestock overload rate change, and pest-damaged area were used as indicators of ecological effectiveness. The grassland contract status, the cattle and sheep stock, the beef and mutton production, and the area of different grassland grazing and utilization patterns were used as indicators of livestock production efficiency. Additionally, the funding arrangements of GECSR and population changes were used as indicators of social development effectiveness. The data supporting this study were mainly retrieved from the *China Grassland Monitoring Report* [26], *China Animal Husbandry and Veterinary Yearbook* [27], and *China Grassland Statistics* [28]. The range of indicators included three scale concepts: “national grassland” mainly covers provinces and cities (districts) with natural grassland distributed throughout the country (including Xinjiang Corps and Heilongjiang Reclamation); “national key natural grassland” refers to the relatively concentrated natural grassland in the north and west of China, which is the concentrated distribution area of traditional grazing grassland in China; and “pastoral semi-pastoral area” refers to 268 counties (banners and cities) distributed in 13 provinces.

All statistical analyses were conducted using SPSS Version 26.0 (IBM Company, Armonk, NY, USA), and figures were plotted using Sigma Plot 14.0 (Systat Software, Inc., Chicago, IL, USA). One-way ANOVA was used to separate the influence of pre- (2006–2010) and post-GECSR implementation rounds (2011–2015 and 2016–2020). The data are expressed as mean \pm SE. Differences were considered statistically significant at $p < 0.05$.

3. Results and Discussion

3.1. Effectiveness of Ecological Protection

One of the main purposes of the GECSR is to promote the rational utilization and steady ecological restoration of grasslands. Therefore, the ecological effects of the policy implementation rounds were analyzed by selecting three indicators, namely, grassland vegetation status, livestock overload rate change, and pest-damaged area.

3.1.1. Steady Increase in Grassland Vegetation Coverage and Enhanced Production Support Capacity

The results show a significant increase ($p < 0.05$) in the national grassland hay yield after the implementation of the GECSR (Figure 1a). The yield after the second round was greater than that in the first round and before the implementation of the GECSR. Moreover, grassland vegetation coverage increased significantly ($p < 0.05$) (Figure 1b). After the second round of the GECSR expired, the national grassland comprehensive vegetation coverage reached 56.1%, which was 5.1 percentage points higher than that at the beginning of the first policy implementation round. Grassland yield and vegetation coverage are often affected by precipitation. However, according to analysis of the annual precipitation index from 2006 to 2020 at six representative meteorological stations in the main grassland areas of China (Xining, Tibet, Kashgar, Inner Mongolia, Xilinhot, Zhurihe, and Ewenki),

there was no significant change in high variation ($p > 0.05$) (Figure S1). During the same period, grassland dry grass yield and vegetation coverage increased significantly with low variation ($p < 0.05$) (Figure 1). The implementation of the GECSR has played a positive role in the steady improvement of grassland ecological production functions.

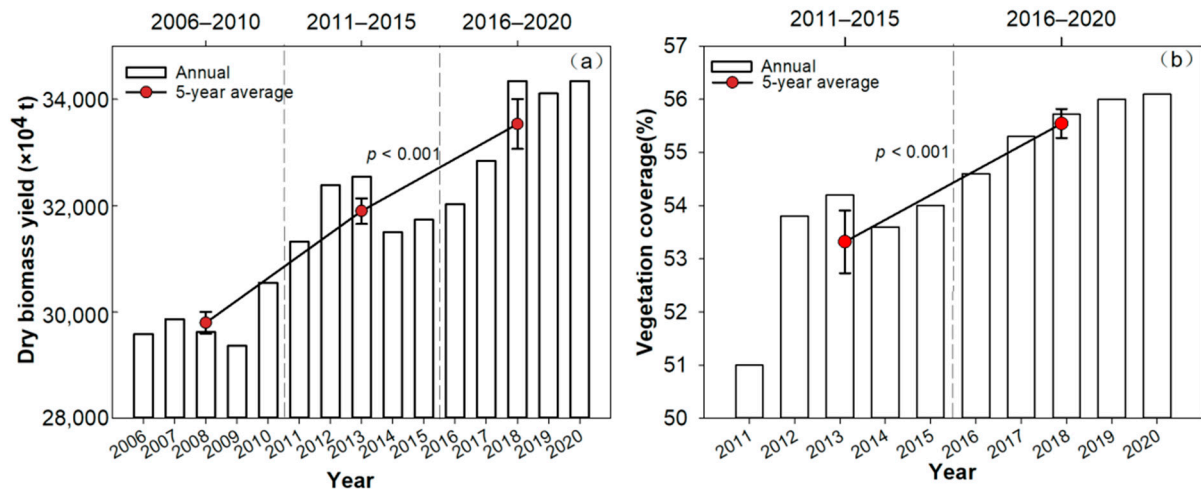


Figure 1. Trends in natural grassland hay yield (a) and vegetation coverage (b) in China from 2006 to 2020.

3.1.2. Livestock Overloading Rate Continued to Decline, and Resource Utilization Became More Rational

Reducing grazing pressure on natural grasslands is the key to protecting and restoring grasslands, and it is also the key aim of the GECSR. The livestock overloading rate decreased significantly after the implementation of the policy ($p < 0.05$) (Figure 2). The decline in the livestock overloading rate was fastest in the first round of implementation for the national key natural grasslands and the natural grasslands in the pastoral and semi-pastoral areas, and the decline rate was relatively slow in the second round. Through the comprehensive implementation of the grassland grazing ban and grass–livestock balance system, the policy has steadily played a role in reducing the rate of livestock overload and slowing down the carrying pressure of natural grasslands, enabling natural grasslands to recuperate and renew.

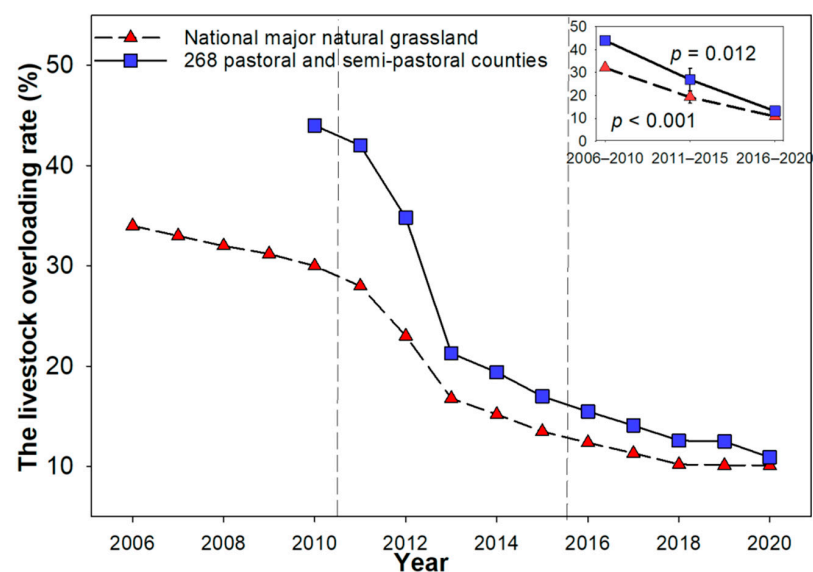


Figure 2. Average overloading rate of livestock in major natural grasslands and pastoral and semi-pastoral counties in China from 2006 to 2020.

3.1.3. Sustained Improvement of the Grassland Ecological Environment and Effective Control of Rodents and Pests

The results show that the area of grassland in China damaged by rodents and other pests decreased significantly after the implementation of the policy ($p < 0.05$) (Figure 3). Before the implementation of the policy, the average annual area of grassland damaged by rodents and pests in China was 38.55 and 20.05 million hm^2 , which decreased to 35.30 and 15.36 million hm^2 (−8.43% and −23.4%) in the first round and 30.83 and 11.61 million hm^2 (−20.04% and −42.1%) in the second round, respectively. After the implementation of the GECSR, the rodent and pest damaged area decreased by 20.57% annually. Although the rodent and pest damaged area increased in 2019 and 2020 compared with 2018, the average damaged area was still 21.46% less than that before the implementation of the policy. This indicates that with the implementation of the policy and improvement of the grassland ecological environment, the ability of the ecosystem to control rodents and pests improved. In addition, grassland rodent and pest disaster monitoring, prevention, and control capability in China has been continuously strengthened, and the damage to grasslands caused by these pests has been effectively controlled.

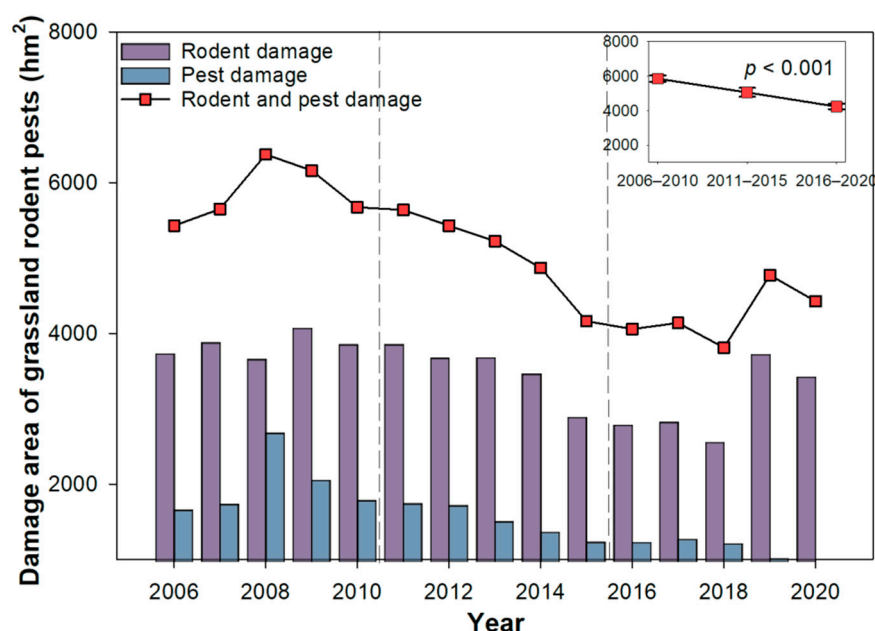


Figure 3. The areas damaged by rodents and pests in the grasslands of China from 2006 to 2020.

3.2. Effectiveness of Livestock Production

Production regulation is the internal regulation mechanism of the GECSR and an important pathway for “reducing livestock without reducing meat and reducing livestock without reducing income.” To play the role of GECSR in production, the key is to accelerate the transformation and upgrading of grassland animal husbandry so as to improve production efficiency and reduce ecological pressure.

3.2.1. Promote the Implementation of Grassland Contracting and Enhance the Vitality of Pastoral Areas

The grassland contract management system is the cornerstone of various pastoral systems and forms the basis of the GECSR, the implementation of which has promoted the uptake of grassland contracts by herders in pastoral and semi-pastoral areas in China (Table 1). After the implementation of the policy, the grassland contracted area increased from 181.62 million hm^2 (77.62%) in 2010 to 226.82 million hm^2 (96.94%) in 2015 (at the end of the first implementation round) and 210.36 million hm^2 (89.90%) in 2020 (at the end of the second implementation round). Additionally, the contracted household area increased

from 140.90 million hm^2 in 2010 to 184.03 million hm^2 in 2015 and 181.90 million hm^2 in 2020. The proportion of the total contracted area increased from 77.58% in 2010 to 81.14% in 2015 and 86.47% in 2020. The implementation of the grassland contract system guarantees herdsmen the rights to possession, management, and income of the grassland according to law, enhances the ecological awareness of herdsmen regarding protecting and rationally utilizing the grassland according to law, and plays an important role in promoting the development vitality of pastoral areas.

Table 1. Grassland contracting in pastoral and semi-pastoral regions in China.

Year	Cumulative Contracted Area ($\times 10^6 \text{ hm}^2$)			Contracted to the Household Area ($\times 10^6 \text{ hm}^2$)			Grassland Area ($\times 10^6 \text{ hm}^2$)
	Pastoral and Semi-Pastoral Regions	Pastoral Region	Semi-Pastoral Region	Pastoral and Semi-Pastoral Regions	Pastoral Region	Semi-Pastoral Region	
2010	181.62	135.75	45.87	140.90	110.35	30.55	233.98
2011	207.19	153.54	53.66	173.08	132.89	40.20	
2012	214.68	157.46	57.23	176.54	136.62	39.92	
2013	216.12	158.68	57.44	176.77	136.27	40.49	
2014	225.67	167.38	58.29	185.65	145.82	39.83	
2015	226.82	167.91	58.90	184.03	144.09	39.95	
2016	176.71	125.96	50.75	127.93	102.91	25.02	
2017	166.39	127.19	39.20	125.09	102.34	22.75	
2018	217.97	161.18	56.79	177.60	137.27	40.34	
2019	211.58	154.62	56.95	178.99	137.16	41.83	
2020	210.36	155.24	55.12	181.90	141.38	40.52	

3.2.2. Stable Decrease in Livestock in Pastoral Areas and Gradual Optimization of Livestock Quantity Pattern

The total stock of sheep and combined cattle and sheep in pastoral areas of China showed a significant decreasing trend ($p < 0.05$) after the implementation of the GEC-SRP; however, there was no significant difference in the number of cattle alone ($p > 0.05$) (Figure 4a). By contrast, the total stock of cattle, sheep, and combined cattle and sheep showed significant increasing trends in semi-pastoral areas ($p < 0.05$) (Figure 4b).

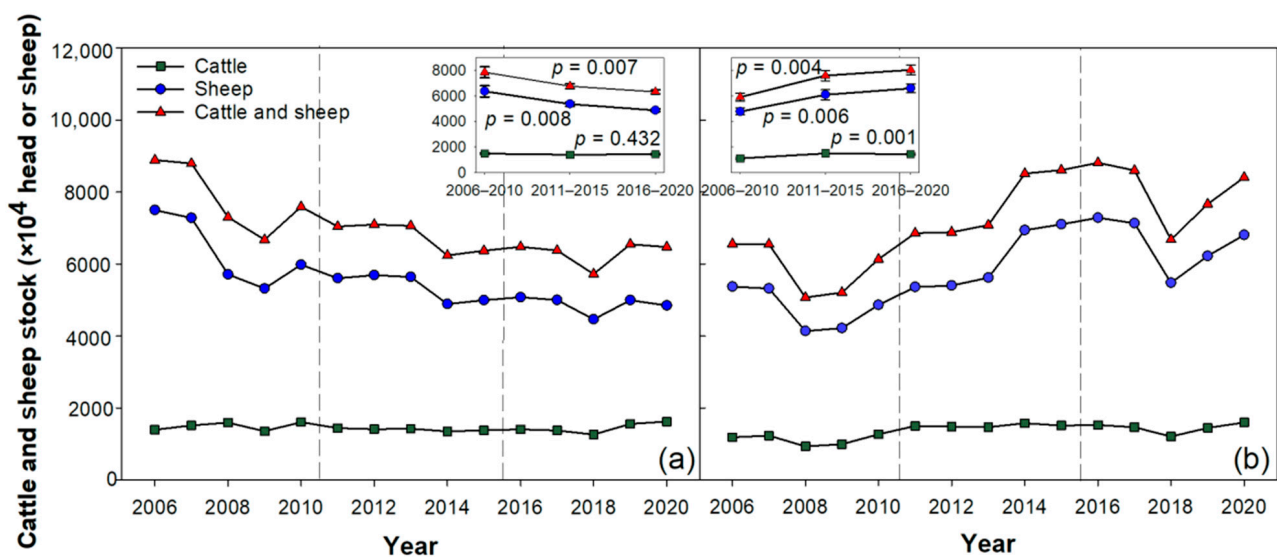


Figure 4. Yearly changes in the numbers of cattle and sheep in pastoral (a) and semi-pastoral (b) regions of China from 2006 to 2020.

The GECSRP promoted implementation of the strategy of “stabilizing cattle and reducing sheep” in pastoral areas and “increasing cattle and increasing sheep” in semi-pastoral areas, and the optimization of the distribution pattern of livestock quantity in pastoral and semi-pastoral areas. There was a trend of a steady decrease in pastoral areas and a gradual increase in semi-pastoral areas, which reduced the ecological pressure on grassland in pastoral areas, promoted grassland recovery, and ensured the overall stability and healthy development of livestock.

3.2.3. Increase in Beef and Mutton Supplies and Steady Improvement in Herbivorous Livestock Product Yield

The total cumulative yield of beef and mutton in the pastoral and semi-pastoral areas of China showed a significant increasing trend before and after the implementation of the GECSRP ($p < 0.05$; Figure 5), whereas there was no significant change in yield in the pastoral areas alone ($p > 0.05$). After two rounds of GECSRP implementation, the characteristic livestock products of cattle and sheep in pastoral areas of China showed a new pattern of a double increase, and the guaranteed ability was further enhanced.

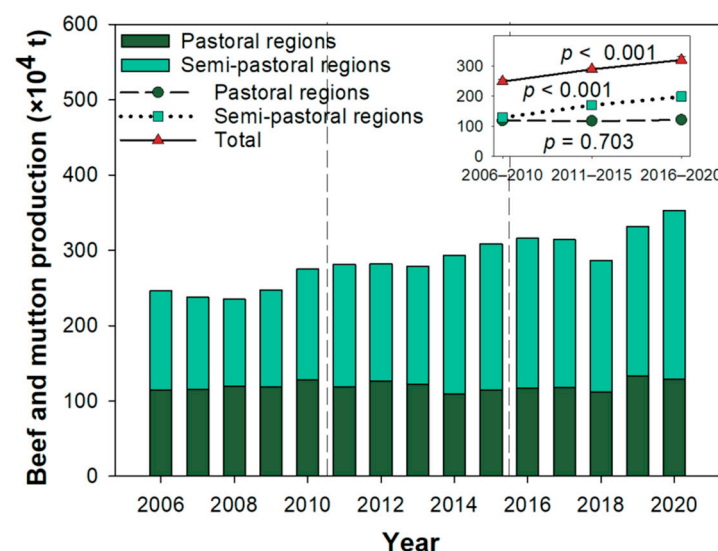


Figure 5. Beef and mutton production in pastoral and semi-pastoral regions of China from 2006 to 2020.

3.2.4. Diversification of Grassland Grazing Utilization and Optimal Transformation of Production Methods

A grazing system comprising closed grazing prohibition, rotational grazing, and grazing enclosures (rest grazing) is the main direction taken to transform the grassland animal husbandry production mode, and the premise and foundation for gradually moving towards ecological animal husbandry. The national grassland grazing ban and grazing rest rotation area results (Figure 6) show significant increasing trends ($p < 0.05$) in prohibited grazing, rest grazing, and total grazing areas, whereas the rotational grazing area showed no significant difference ($p > 0.05$) after the implementation of the GECSRP. Among them, the average annual area for which grazing was forbidden increased by 2.05 times compared to before the implementation of the policy, and the average annual area for rest grazing increased by 33.95% compared to before the implementation of the policy. Implementation of the GECSRP has effectively promoted the diversification of grazing utilization in pastoral and semi-pastoral areas, guaranteed the implementation of a grazing system to protect grasslands (such as grazing prohibition and rest), and accelerated the optimal transformation of production methods.

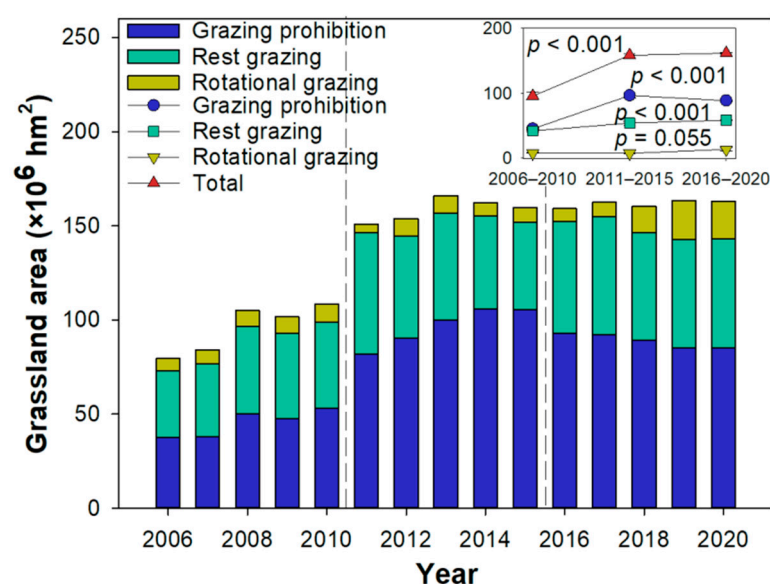


Figure 6. Area of grazing prohibition, rest grazing, and rotation grazing in Chinese grasslands from 2006 to 2020.

3.3. Effectiveness of Social Development

Ensuring and improving the livelihoods of people living in pastoral areas is the foundation of the GECSRP. By protecting grasslands and promoting livestock production, the policy can continuously meet the needs of herders and improve their quality of life. Subsidy funds are an important income source for herding households and have a positive impact on maintaining and improving herder income. Labor transfer results in re-employment, which is an important feature of the industrial structure and reduction in population pressure in pastoral areas.

3.3.1. GECSRP Ensures a Stable Income for Farmers and Herders

According to the 2011 GECSRP funding arrangement data (Table 2), the policy was implemented in eight provinces, directly issued CNY 12.84 billion in subsidy funding, and involved 1,965,580 herding households. Further, the national average household policy subsidy funds reached CNY 6350. The second round of the GECSRP was implemented in 2016. Since then, the subsidy and award funding has increased to varying degrees in each province and region, and the standard of subsidies and awards has also been improved. In 2018, Yunnan, Tibet, Xinjiang, Qinghai, Inner Mongolia, Sichuan, and Gansu received 82.46%, 62.54%, 50.34%, 38.73%, 25.04%, 22.22%, and 19.51% increases in funding, respectively. After 2019, some of the funds were allocated to ecological restoration; therefore, the 2020 subsidies were slightly reduced. However, the overall subsidies in 2020 still increased compared to those in 2011; therefore, the majority of farmers and herdsmen benefited further (Figure 7a).

Table 2. GECSRP funding arrangements and amount received per household in 2011.

Province	Forbidden Grazing Subsidy ($\times 10^4$ CNY)	Grass–Livestock Balance Award ($\times 10^4$ CNY)	Subsidy for Planting Forages ($\times 10^4$ CNY)	Comprehensive Subsidy for Production Materials ($\times 10^4$ CNY)	Total Funds ($\times 10^4$ CNY)	Number of Herders ($\times 10^4$ Household)	Funds Received Per Household (CNY)
Yunnan	16,386	22,604	7210	1715	47,915	3.43	13,969
Tibet	77,628	114,693	1060	7600	200,981	15.20	13,222
Qinghai	147,282	34,332	4500	8600	194,714	17.20	11,321
Inner Mongolia	242,940	92,265	45,220	24,050	404,475	48.10	8409

Table 2. Cont.

Province	Forbidden Grazing Subsidy ($\times 10^4$ CNY)	Grass–Livestock Balance Award ($\times 10^4$ CNY)	Subsidy for Planting Forages ($\times 10^4$ CNY)	Comprehensive Subsidy for Production Materials ($\times 10^4$ CNY)	Total Funds ($\times 10^4$ CNY)	Number of Herders ($\times 10^4$ Household)	Funds Received Per Household (CNY)
Xinjiang	90,000	81,135	5780	13,790	190,705	27.58	6915
Gansu	60,000	21,150	22,120	11,050	114,320	22.10	5173
Sichuan	42,000	21,300	8600	22,600	94,500	45.20	2091
Ningxia	21,336	/	5700	8874	35,910	17.75	2023
Total	697,572	387,479	100,190	98,279	1,283,520	196.56	6530

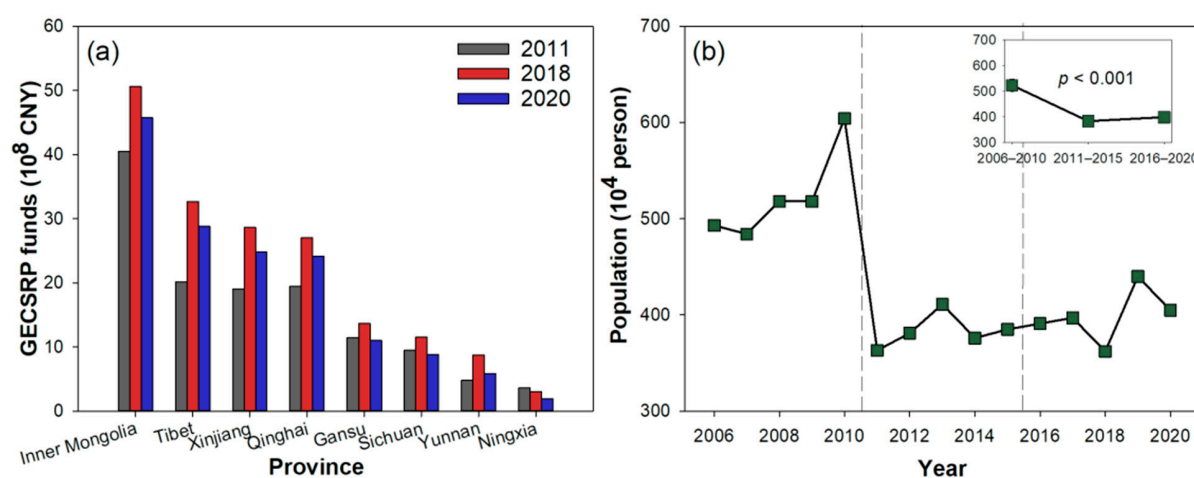


Figure 7. GECSRP funding arrangement and population changes. (a) The value of GECSRP funds provided to major grassland provinces in China in 2011, 2018, and 2020; (b) population changes in pastoral regions from 2006 to 2020.

3.3.2. GECSRP Improves Labor Transfer and Effectively Mitigates Grassland Environmental Carrying Capacity

According to the pastoral resident population data (Figure 7b), before the implementation of the GECSRP, the population of pastoral areas in China increased from 4.93 million in 2006 to 6.04 million in 2010, an increase of 22.52%; after the implementation of the GECSRP, the population of pastoral areas decreased significantly ($p < 0.05$). After the first round of policy implementation in 2011, the resident population decreased significantly to 3.63 million, a decrease of 39.9%. At the end of the second round of policy implementation in 2020, the resident population stabilized at approximately four million, a reduction of more than a quarter of the population before the implementation of the supplemental bonus policy. Overall, the GECSRP and other supporting policies effectively promoted the transfer of labor in pastoral areas; reduced the dependence of the pastoral population on the livestock industry; weakened the contradiction between humans and land; eased the imbalance between grassland management and livestock production; and effectively slowed down the pressure on the grassland environment.

4. Discussion

4.1. Effectiveness of GECSRP

Since the implementation of the GECSRP, the average livestock overload rate of natural grasslands nationwide has declined and subsequently stabilized at approximately 10%, the ecological production function of grasslands has steadily recovered, and the area affected by rodents and pests has continued to decrease owing to improvements in the ecological environment and strengthening of prevention and control measures. From the dimension of

production, the implementation of GECSRP has promoted the implementation of grassland contracting in various regions, which has promoted the optimization of the distribution pattern of livestock quantity. The livestock in pastoral areas has steadily decreased, while the livestock in semi-pastoral areas has increased in an orderly manner. The supply of beef and mutton has doubled, and the guarantee capacity of high-quality livestock products has been consolidated and strengthened. From the dimension of herder life, population transfer in pastoral areas has decreased, and herders' income has increased with the implementation of the GECSRP

4.2. Major Issues

The macro-level data show that the GECSRP has been effective since its implementation in 2011, with continuing improvement of grassland ecology, the stable development of pastoral production, and the continuous improvement of herders' livelihoods. However, it is worth mentioning that during the first two rounds of policy implementation, some problems were gradually revealed, affecting the realization of the expected outcomes.

4.2.1. The Low Standard and Weak Mechanism of Subsidies and Awards Make It Difficult to Consolidate the Achieved Effect

The livestock overload rate in key natural grasslands nationwide was reduced from 30% in 2010, before the implementation of the subsidy policy, to 10.09% in 2020: a reduction of nearly 20 percentage points. However, by the second round of policy implementation, the livestock overload rate was maintained at approximately 11%, making it difficult to make further reductions. In addition, the incentive mechanism of the GECSRP is weak; not only does it not achieve the "balance of compensation and loss," it also does not reflect "who protects who benefits, who destroys who compensates." Statistical analysis showed that the overload rate in some key natural grassland areas had a tendency to rebound; for example, the livestock overload rate in Inner Mongolia dropped to 9.0% in 2014, but subsequently rose to 12.0% in 2016 and 2017. To some extent, this result is related to the low standard of compensation and rewards, and the lack of an "incentive-constraint" mechanism. Therefore, the maintenance and consolidation of the ecological effects achieved by the policy are still at risk, and ensuring the sustainable and effective implementation of the policy requires attention.

4.2.2. Insufficient Supporting Measures and Funding Affect the Efficiency and Expected Outcomes of Policy Implementation

Achieving the objectives of the GECSRP involves collecting information from thousands of households. Furthermore, policy promotion, monitoring, and evaluation require a large financial guarantee; however, there is a lack of supporting policy funds. Additionally, follow-up industrial support is an important means and key measure for cultivating and strengthening new business entities and enhancing the production and operation level of herding households. Before 2018, the department managed the performance award funds for the work guarantee and industrial development under the GECSRP. However, after institutional reform in 2019, management of the performance award funds was transferred to the forestry and grass sector. Owing to a lack of funding and supporting measures, the ability of the department to regulate the development of the grass and grazing industry weakened, resulting in no strong industrial development. Without strong industrial development as the basis of the policy, the goal of "two protection and one promotion" will be difficult to achieve.

4.2.3. Insufficient Multi-Policy Integration of the National Subsidy Policy and Local Development

The top-level design of the GECSRP has fully taken into account the large grassland area and the complex economic and social problems of pastoral areas. By adhering to the principle of "four to the province" (target of the province, task of the province, responsibility of the province, funds of the province), most of the provinces (regions) in the

implementation process will have the right and responsibility of policy design in the city (league) county (banner), fully mobilizing local enthusiasm. However, from the perspective of policy practice, the design of the GECSR implementation plan has not fully reflected region-specific issues, and the policy “independence” is obvious. Further, the integration of economic and social development, ecological protection, industrial development, and other aspects of each region is insufficient because of a lack of policy synergy.

4.2.4. Herders’ Livelihoods Are Highly Dependent on Traditional Animal Husbandry, and It Is Difficult to Regulate and Control Grazing Overload Using Policy

The development of the grass grazing industry in pastoral areas is not sufficient, and livestock production and operation by herders remain the basis of the current grassland livestock industry, which has backward facilities, sloppy technology, low efficiency, poor risk resistance, and other problems. Additionally, most herders are unwilling to leave the pastoral industry and lack the necessary skills to secure employment and development opportunities in cities. The livestock industry has become the main source of income for herders, and the traditional model of maintaining income increases by quantity growth has not yet undergone a fundamental change. Grassland ecological protection and herder incomes remain affected by the dilemma of “population growth—Livestock expansion—Grassland degradation—Low efficiency—Herdsman’s income is difficult”, which increases the difficulty of regulating and controlling the “livestock reduction and income increase” policy.

4.2.5. Weak Construction of Grassland Law Enforcement and Supervision System, Supporting Technical Means to Strengthen Innovation

The GECSR has “reduced animal restraint” characteristics, and supervision is in place to ensure that the policy achieves this key goal; however, current grassland law enforcement still faces some difficulties and challenges. First, the existing regulatory system, laws, and regulations are still in the process of continuous improvement and development, and institutional reform. Additionally, the grassland law enforcement supervision team specialization tends to be weak. Second, grassland supervision support technology is obsolete compared to other areas of supervision, the grassland area is large, and it relies on costly and inefficient manpower, or “people, eyes” for site inspections. In addition, the implementation of the first two rounds of the policy was one of the key elements of the verification and control of livestock herding households; because there was no modern technical support, the “inaccurate sheep” and “incomplete households” problems were more prominent.

4.3. Policy Recommendations

In 2021, the third round of the GECSR was ushered in. Summarizing the experience and practice of the first two rounds of the GECSR to explore the optimization path for the policy and further improve the efficiency and effectiveness of policy implementation is necessary and urgent; therefore, this study proposed five changes to policy expectations to support government decision making.

4.3.1. Change from a Single Supplement to a Higher Standard and Policy Expansion

The recommendations of this study include scientifically accounting for the loss of livestock, reasonably raising the standard of compensation and awards, striving to achieve a balance of compensation and awards, and reducing the loss of production and management interests for herders. To clarify the long-term nature of the policy, it is necessary to maintain the stability of the policy so that policy outcomes can be steadily enhanced and continuously consolidated. Grassland compensation and ecological compensation should be actively sought and reflected in the Grassland Law of the People’s Republic of China to make it clear that the protection of grassland is important. Farmers and herders should be obliged to protect grasslands and, at the same time, be given the parallel rights and interests to enjoy subsidies. We should adhere to the ecological protection objectives of the policy

without wavering, encourage local departments to combine existing policies, consider the actual needs of economic and social development as well as ecological protection, optimize the necessary complementary policies to make up for the shortcomings of the single policy, work toward policy synergism, and improve policy efficiency.

4.3.2. Change from Single Control of Livestock Volume to Dual Assessment of Livestock Volume and Ecology

It is suggested that the implementation of the GECSRP should change from process control to dual control of process and target. The current policy requires the achievement of a grazing ban and grass–livestock balance, which is the process management method, and the assessment index is mainly the actual livestock carrying rate (amount). However, the grass–livestock relationship is complex and difficult to control; coupled with the lack of advanced technical means and sufficient regulatory power, there are practical difficulties in the verification and control of livestock numbers at the herding household scale. Therefore, a combined management approach of source control of livestock quantity and ecological target assessment should be formed as soon as possible, including: gradual promotion of policy implementation and supervision of ecological assessment, weakening of the process management of livestock reduction, giving herders the freedom to optimize the regulation of grass–livestock relationships, strengthening the ecological priority target orientation, and enhancing the monitoring and control of grassland ecology.

4.3.3. Change from a Livestock Reduction Strategy to Promoting Industrial Development

It is suggested that in addition to providing direct subsidies and awards to farmers and herders, supplemental policies and funds that support the development of the pastoral industry should be increased, attention should be paid to strengthening the development of a modern grass herding industry and related industries, and the transformation of production and operation modes in pastoral areas should be accelerated. Industrial development, extension, and integration can improve the low efficiency of traditional grassland animal husbandry (China's grassland and livestock conversion efficiency is 1–2%, which is only one-eighth of that of the world's developed countries, and the production level of natural grass livestock products per unit area is only one-eighth, one-twentieth, and one-tenth of those of New Zealand, the United States, and Australia, respectively). Further suggestions include activating the endogenous power of the industry, and developing the industry itself to provide benefits such as income improvement, alleviation of the human–grassland–livestock contradiction, and curbing of grassland overuse, which will guarantee the desired outcomes of policy implementation.

4.3.4. Change from Transfer Payments to Attaching Importance to the Development of Farmers and Herdsmen

It is suggested that the GECSRP and its supporting funds should be strengthened to improve the production skills of farmers and herders. Future implementations of the policy provide an opportunity to increase investment in human development; hence, the policy should consider human migration and conversion caused by the limitations of education level, cultural customs, language barriers, and production skills in pastoral areas. Further, the policy should provide mechanisms for improving the quality of herders' practices, increasing their ability to change career, broadening their employment channels, and reducing their dependence on animal husbandry. It is also necessary to encourage the improvement of the "government, industry, academia, and research" system, strengthen herder production skills training, allow more herders to understand, master, and apply new technologies, improve the supply capacity of science and technology, speed up the transformation of mature scientific and technological achievements to herders' production units, and promote the transformation of herder household production units.

4.3.5. Change from a Supplemental Mechanism to Diversified Ecological Compensation

It is recommended that grassland ecological protection actively explore diversified ecological compensation mechanisms. During its implementation, the GECSR has played a positive role in grassland ecological protection and restoration by investing a large amount of funds in areas affected by serious ecological degradation; however, at the same time, the phenomenon of “whoever destroys the grassland gets a high standard of subsidy funds” has also emerged. In the short term, the policy plays a “strong heart” role, which guarantees a significant reduction in the overload rate in the short term after the implementation of the policy on a large scale nationwide. However, in the long term, the current policy design is not the most fair and efficient mechanism as it does not form a benign order pattern for who protects and who benefits. Therefore, grassland ecological protection under the GECSR should gradually transition from an “ecological reward” to an “ecological rewards + ecological compensation” dual mechanism, creating a fair and efficient ecological compensation policy that provides incentives to farmers and herders who protect grasslands.

4.4. Application and Future Work

The theoretical basis of China’s GECSR is ecological compensation, which aims to achieve grassland protection and restoration by reducing grassland livestock carrying capacity, and in the process, giving about 3–4 times more to no-grazing areas with more livestock reduction than the areas that allow grazing but require a balance of grass and livestock. We think an increase in the standard of compensation and awards to reach a balance with the loss of livestock of herders may have a better effect, even without the current overload level of about ten percent. In fact, many practices of grassland ecological compensation have been carried out in countries such as the United States, Canada, and Australia to protect grasslands through direct financial compensation, technical compensation/support, grassland insurance, and other paths. It can be seen that grassland ecological compensation should be a system that can be replicated in grassland countries around the world, but different national systems, levels of economic development, grassland conservation priorities, and obstacles are encountered and require the introduction of their own targeted policies or mechanisms.

Based on the analysis of the official grassland monitoring statistics in China, this study analyzed the effectiveness and main problems of the GECSR on a macroscopic scale, especially on the basis of international experience and the practice of ecological GECSR in China, and proposes countermeasures and suggestions that may help the policy improve its effect, with a view of providing better results for grassland ecological compensation in China. It is intended to provide a reference for better results of grassland ecological compensation in China, and to provide excellent cases for strengthening ecological protection and promoting economic and social development of grassland pasture areas in grassland countries worldwide. Of course, there are some shortcomings in this study, such as the data chosen for the study, which are relatively macroscopic, and the results of the study, which can grasp the effects of the policy at the national scale but cannot clearly explore the effects of the policy at the scale of different provinces, counties, typical watersheds, or even herding households. The next step we suggest is conducting in-depth policy effectiveness evaluations at meso and micro scales, with the aim of providing richer and more informative results from China and global grassland countries.

5. Conclusions

The GECSR has been significantly effective in protecting grassland ecology, regulating livestock production, and safeguarding the livelihoods of pastoralists. The ecological production function of grassland has steadily recovered, the overloading rate of livestock has continued to decline, and the area damaged by rodents and pests has continued to decrease. Grassland contracting was implemented in various regions, the distribution pattern of livestock was optimized, and the ability to guarantee high-quality livestock products was

consolidated and enhanced. Additionally, the guarantee capacity of high-quality livestock products has been consolidated and strengthened. However, there are still many problems under the existing policies, such as low subsidy and reward standards causing an increase in the overgrazing rate, livestock production remaining the main income source for herders, and a lack of technical support reducing forage and livestock quality, which subsequently reduced the income of herders. Therefore, this study suggests that the current policy be improved by gradually enhancing the evaluation standards, taking into account the balance between livestock grazing and grassland ecology, promoting the industrialization of livestock products, and valuing production skills of herdsman.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/agriculture12081177/s1>. Figure S1: Annual precipitation trends at grassland meteorological stations in China from 2006 to 2020.

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