

Study on the Restoration and Control of Yulin Landscape, Forest, Field, Lake and Grass System

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Abstract: Yulin city is a national high-end energy and chemical industry base. After more than 40 years of development of coal mining area, the geological disasters and ecological environment damage caused by the original coal mine goaf have become the urgent ecological environment problems that perplex the sustainable development of Yulin city. The traditional ecological governance mode of mining area, with high governance cost, large implementation resistance and poor ecological benefits, can not meet the requirements of Yulin mining area. With the new requirements of ecological environment and economic development, it is urgent to explore a new model of ecological governance in mining areas. On the basis of ecological restoration in mining area, this paper puts forward the development mode of ecological restoration and multi industry integration in mining area, and analyzes it based on SWOT model, in order to provide a practical way for the sustainable development of mining area in Yulin City, so as to make sustainable use of resources and sustainable development of ecological environment.

Keywords: Mining area, Ecological restoration, Multi industry integration.

1. Introduction

"The ecological protection and restoration project of mountains, rivers, forests, lakes and grasses is based on the concept that mountains, rivers, forests, lakes and grasses are life communities, the overall planning of land space and the relevant special planning of land space ecological protection and restoration. In a certain region, in order to improve the self-recovery ability of the ecosystem, enhance the stability of the ecosystem, promote the overall improvement of the quality of the natural ecosystem and the overall enhancement of the supply capacity of ecological products, follow the natural ecology. The law and internal mechanism of system succession, the process and activities of overall protection, system repair and comprehensive management of the ecosystem damaged, degraded and degraded. Compared with the previous projects related to ecological protection and restoration, the landscape project has the characteristics of integrity, systematicness and comprehensiveness."

For a long time, due to the high intensity of land development and construction, the development and utilization of mineral resources and other factors, Yulin has many problems left over from its ecological history, heavy tasks of protection and restoration, and the lack of systematic and integrated ecological protection and restoration. There is an objective situation of fighting independently.

According to the Notice of the Shaanxi Provincial Department of Natural Resources on Cooperating in the Research and Research on the Integrated Control of Mountains, Rivers, Fields, Lakes and Grasslands, Yulin City carried out a special research work around the "Research on the Integrated Control of Mountains, Rivers, Fields, Lakes and Grasslands in the Yellow River Basin", and conducted a survey on the ecological conservation area of forests and grass in the north of Shaanxi Province. The scope of the soil and water conservation area in the hilly and gully areas of the Loess Plateau in northern Shaanxi and the ecological restoration area along the main stream of the Yellow River has put forward the working ideas, main tasks, major projects, policies and measures of comprehensive treatment,

systematic treatment and source treatment, and formed the main ecological function area delimitation, existing problems and main tasks.

2. Overview

Yulin City is located in the northernmost part of Shaanxi Province, bordering Gansu and Ningxia in the west, Inner Mongolia in the north, Shanxi across the Yellow River in the east, and Yan'an City in the south. It is located at 36°57'-39°35'N and 107°28'-111°15'E. The easternmost point is Huangfu Town, Fugu County, the northernmost point is the ancient town of Fugu County, the westernmost point is Jiyuan Town, Dingbian County, and the southernmost point is Zhang Yaoxian Town, Dingbian County. The maximum length from east to west is 309 km, the maximum width from north to south is 295 km, and the total area is 42947.2 km². It has jurisdiction over 9 counties, including Yuyang District, Hengshan District, Shenmu City and Fugu, Dingbian, Jingbian, Suide, Mizhi, Jiaxian, Wubao, Qingjian and Zizhou, with a permanent population of 3.42 million.

3. Division of Ecological Functional Areas

Based on the comprehensive collection and analysis of relevant images, charts, written reports and other data, and on the basis of full investigation, according to the land space ecological restoration zoning determined at the provincial level, and in combination with the opinions of relevant departments, Yulin ecological functional area is divided into three areas: the wind-sand forest and grass ecological conservation area (I), the hilly and gully water and soil conservation area on the Loess Plateau (II), and the ecological restoration area along the main stream of the Yellow River (III); Five sub-areas: wind-sand grassland area (I1), saline-alkali area in the north of Dingbian (I2), loess hilly and gully area (I11), Baiyushan Heyuan Liangjian area (II2) and earth-rock mountain area along the Yellow River (III1).

4. Fengtan Forest and Grass Ecological Conservation Area

The region belongs to the transitional zone between the Mu Us Desert and the loess hilly and gully in geomorphology, and is the transition from arid, semi-arid to semi-humid in climate, and its vegetation type presents the transition from desert, desert grassland to forest grassland. There are various types of small and medium-sized landforms, including wind beach landforms, wind erosion and desertification loess landforms, and white sand basin in front of the mountain. Among them, the wind beach landform is distributed in the north of Yulin and Shenmu Great Wall, Dachang Khan Town in the northwest of Fugu County, and the north of Dingbian and Jingbian. The main types of small landforms are wind sand Lianggang and wind beach. The wind erosion and desertification loess landform is distributed in the Liangling of the Great Wall, the west side of Hengshan and the north side of Baiyu Mountain. The main small landforms include wind erosion ridge, sandy ridge, sandy river and sandy gully. In general, the trend of vegetation degradation in the region is serious, the land desertification is widespread, the groundwater level is unstable, the protection efficiency is low, and the ecological environment is fragile.

We will increase the construction of meshwork and frame forests and strengthen the measures of enclosure. Take seabuckthorn, *Astragalus adsurgens* and other suitable shrubs and grasses as the main plants, optimize the structure of trees, shrubs and grasses, implement projects such as improving the quality of forest stands in sand areas, and rehabilitating degraded grasslands, and focus on building two large protective forest belts with a width of more than 1000 m along the Great Wall and the border of Shaanxi, Mongolia and Ningxia, and planting *pinus sylvestris* var. *mongolica*. Build an ecological comprehensive management area combining "trees, shrubs and grasses", and promote the transformation of sand areas from "light green" to "dark green".

Build a grassland base to achieve the goal of protecting livestock and agriculture with forests. Relying on the beaches around "Xiaohaizi" and both banks of the river, surrounding the farmland and grassland, planting instead of breeding, using grass to determine livestock, making rational use of water resources, transforming and improving the farmland in the sand area, creating a protective forest network, increasing the efforts to change grain to feed, and developing the breeding industry combining economic forest and forest and grass. Relying on the leading enterprises to drive the development of high-quality forage, the whole township focuses on promoting the development of high-quality forage and sand mulberry.

Accelerate the geological and ecological restoration of the mining area. With reference to the afforestation mode of "close to nature" and "sparse forest", in combination with the Three-North Shelterbelt Program construction project and Beijing Tianjin sandstorm source control project, the mined out area will build a frame forest network pasture, focus on the development of grass industry, take closure and protection measures, and build a grassland in the mining area. Do a good job in the ecological restoration and treatment of the oil exploitation area, focusing on the closed pit reclamation of the waste well pad and the planting of grass and trees in the oil area, to restore the ecological vegetation and reduce water and soil loss.

5. Saline-alkali Area in The North of Dingbian

This area is distributed in the low-lying area bordering the southwest edge of the Mu Us Desert and the northern Shaanxi Loess Plateau, including 14 salt lake areas, which are inland basins. The surface water system is extremely underdeveloped. The groundwater is mainly Quaternary phreatic water, followed by the Mesozoic bedrock fissure phreatic water (stored in the weathered crust with a thickness of 30~80 m on the surface of the bedrock). The groundwater level in this area is relatively shallow, and it is generally 1~8 m deep in the depression and 2~10 m deep in the beach. Under strong evaporation, shallow groundwater accumulates on the surface of soil through capillary water rising, forming an inland saline phreatic water zone. The shallower the groundwater level is, the higher the degree of soil salinization is. The distribution of many salt lakes has led to the formation of mild, moderate and severe saline-alkali land in the northwest wind beach area of Dingbian County. In general, the area is low-lying, with poor drainage, low soil fertility, serious sand erosion and salinization, and small land area for planting crops and low yield.

Deep ploughing and tillage. After deep ploughing, let the soil be ventilated and ventilated, improve the physical and chemical properties of the soil, first inhibit the further aggravation of salinization, and then slowly adjust it. At the same time, the soil after deep ploughing can slow down the evaporation of water in part of the soil, reduce certain salt content, and play a certain inhibiting role.

Increase the application of organic fertilizer. In salinized soil, adding organic fertilizer will transform into humus after decomposition by microorganisms in the soil, which can reduce soil alkalinity to a certain extent. In addition, some substances contained in organic fertilizer will also produce certain organic acids during decomposition, which will be neutralized by acid and alkali, so as to improve the physical and chemical properties of soil and alleviate salinization.

Rotation and rotation. Through the change of planting crops, there are differences in agricultural management, which is suitable for the land with light salinization degree, so as to alleviate and play a better effect.

Plant plants with strong salt tolerance. Focus on promoting the introduction and cultivation of saline-alkali tolerant plant species, planting salix, white thorn and other plants in areas with high saline-alkali degree, planting salix, Xinjiang poplar and other tree species in areas with low saline-alkali degree, planting economic forests such as *lycium barbarum* and seabuckthorn in areas with good conditions, and carrying out the introduction experiment of *Populus euphratica* and other plants. Plants can reduce the evaporation of soil water and reduce the rate of salt accumulation on the surface. Plants can absorb salt to reduce the content of soil salt. Plant roots can change the physical properties of soil and promote soil desalination.

6. Hilly-gullied Loess Region

The loess in this area is deep, porous and rich in calcium carbonate. The climate is relatively dry, the precipitation is less but more concentrated, and most of it is rainstorm, which makes the loess hilly and gully area develop into a landscape with many gullies, steep slopes, and broken terrain. The climate is quite different, with the continental climate characteristics of cold in winter, hot in summer and intense

changes in heat and cold. The daily temperature difference is large. At the same time, the land in the region is mainly hilly and mountainous, and the undulating landform is not suitable for farming. In addition, the region is poor and backward, the population growth rate is fast, and the agriculture is single operation, wide planting and thin harvest, and extensive farming. In general, the terrain in the region is fragmented, with dense gullies, insufficient total forest and grass, serious soil erosion, poor comprehensive prevention and control capacity of the basin, small industrial scale and low benefits. We will carry out unified planning of mountains, water, forests, fields, lakes, and grasses, and comprehensively manage the beams, hills, ditches, slopes, and tablelands. Taking small watersheds as a unit, guided by the policy of returning farmland to forest (grass), and combined with poverty alleviation, the small watersheds governance will be closely combined with the comprehensive improvement of river systems, ecological agricultural construction, improvement of human settlements, and rural revitalization, focusing on the implementation of engineering measures such as warping dams, slope terraces, and other biological measures such as planting trees and grass, to enhance the water storage and soil consolidation capacity of mountain slope ditches, curb water and soil loss, and reduce the amount of sediment entering the yellow river, We will continue to improve the regional ecological environment.

Pilot projects should be carried out first and demonstration should be promoted. Promote pilot projects such as Mizhi Gaoxigou, Suide Zhaojiawa and Zizhou Baijiagou, improve vegetation coverage, improve soil ecosystem, and build a complete ecological protection system for water and soil conservation.

The control measures of "closing mountains for afforestation and aerial seeding for afforestation" were adopted. Further consolidate the industry of big flat apricot and small-leaved mulberry, develop the economy under the forest, such as cultivation under the forest, small coarse grain, and traditional Chinese medicine, build a group of picking

bases based on fresh apricot, fresh peach, prunus mume, hawthorn and other characteristic forest fruits, create water conservation forest and grass such as Chinese pine, platycladus orientalis, caragana, and alfalfa, and promote the sustainable development of the ecological environment towards good and green.

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