Dear authors,

Thank you for responding to the feedback from both referees. The referees have given significant comments and suggestions that need to be incorporated into a revised version of the manuscript for further review consideration. Alongside addressing the referees' comments, please take into account the following comments for further review consideration.

General comment:

1 The main objective and experimental setup of the study should be better explained in the abstract and introduction sections. For example, what are the experienced negative impacts of the historical land cover changes? And what is you want to mitigate with alternative land cover mixtures?

Response: I revised the abstract section: The Chinese government has implemented large-scale vegetation restoration projects and plans to expand the percentage of grasslands to 60 %. However, excessive vegetation restoration consumes more moisture and causes soil drying in the agro-pastoral ecotone of Northwest China (APENWC). The optimal mixture of land use/cover in the APENWC incorporated into vegetation restoration strategies to mitigate the drying effects remains unclear *(The research gap)*. To fill this gap, the Community Land Model version 5.0 (CLM5.0) with static climatic forcing was used to analyse the spatially averaged impacts of land use/cover change (LUCC) by simulating real LUCC scenarios from 2000 to 2015 and examine the impacts of different types of LUCC by simulating idealised maximised LUCC scenarios *(First experimental setup and first objective)*. The results showed…... Furthermore, to identify the proper land use/cover pattern to mitigate drying, we designed different LUCC scenarios by varying the mixture of land use/cover in the CLM5.0 and compared the criteria (water conservation and LST) from the output *(second experimental setup and second objective)*. Based on higher water conservation and cooling surface, results show that ……

(*The results have been omitted here to give a clearer expression of the main objective and experimental setup)*

This study identifies the optimal mixture of land use/cover to expand the percentage of grasslands to 60 % and mitigate the drying effects due to vegetation restoration, for the first time (*The main aim of this paper*). Previous studies have optimised land use/cover by setting different weights for economic profit and ecological parameters in scenario simulations using a Multi-Objective Genetic Algorithm (Kaim et al., 2018; Kucsicsa et al., 2019; Yang et al., 2020). The experimental design was limited owing to insufficient theoretical studies on parameter settings (Ding et al., 2021) and could not meet the government's preset values (e.g., 60 % grassland) *(research gap)*. Therefore, we first quantified the impacts of the LUCC by simulating land uses/cover scenarios with static climatic forcing in the CLM. We investigated the spatially averaged impacts of LUCC in real scenarios from 2000 to 2015, as well as the impacts of a single type of LUCC in idealised scenarios with maximised LUCC. *(First experimental setup)* These spatially averaged impacts were attributed to the synergy of different LUCC types *(First objective)*. In addition, we further designed different LUCC scenarios by setting the percentage of grasslands as 60 % and varying the percentages of croplands and bare land in the CLM5.0 to identify the optimal mixture of land use/cover in the APENWC based on the higher water conservation and cooling surface. *(second* *experimental setup and objective).*

There is always a trade-off between the introduction of plants and water consumption (Jia et al., 2017a). Artificial plants consume more moisture, rapidly depleting local soil moisture and leading to a dry layer in the loess profile (Ren et al., 2018; Fu et al., 2017). Soil drying by excessive re-vegetation in the study area has been reported (Jia et al., 2017b; Zhang et al., 2018). Therefore, the negative impact is soil drying. I deleted the word "negative impacts" and used "soil drying" to be more specific. This paper wants to mitigate the drying effects with alternative land cover mixtures by criteria (higher water conservation and lower LST).

This expression is kept consistent in the paper as follows:

The Chinese government has implemented large-scale vegetation restoration projects and plans to expand the percentage of grasslands to 60 %. However, excessive vegetation restoration consumes more moisture and causes soil drying in the agro-pastoral ecotone of Northwest China (APENWC). The optimal mixture of land use/cover in the APENWC incorporated into vegetation restoration strategies to mitigate the drying effects remains unclear. To fill this gap, the Community Land Model version 5.0 (CLM5.0) with static climatic forcing was used to analyse the spatially averaged impacts of land use/cover change (LUCC) by simulating real LUCC scenarios from 2000 to 2015 and examine the impacts of different types of LUCC by simulating idealised maximised LUCC scenarios. The results showed that the two main types of LUCC in the study region from 2000 to 2015 were the conversion from bare land and croplands to grasslands. The bare land to grasslands decreased the annual mean land surface temperature (LST) by -0.17 ℃, while croplands to grasslands increased the yearly mean LST by 0.96 ℃; evapotranspiration (ET) changes were 53.32 and -184.42 mm yr^{-1}, respectively, leading to an annual spatially averaged LST by a cooling range of -0.06 ± 0.15 ℃ and ET increased by a range of 9.70 ± 19.04 mm yr^{-1} in the study region. The correlation coefficients between biogeophysical characteristics and change of ET and LST indicated that surface albedo was the most sensitive surface characteristic influencing LST and ET in summer and winter from bare land and croplands to grasslands. In contrast, the leaf and stem area index (LAI + SAI) showed the most significant correlation between croplands and grasslands throughout the year. An analysis of changes in land use/cover patterns from 2000 to 2015 found that some grids experienced drying and warming as vegetation restoration projects, owing to the offsetting effects of the two types of LUCC. Furthermore, to identify the proper land use/cover pattern to mitigate drying, we designed different LUCC scenarios by varying the mixture of land use/cover in the CLM5.0 and compared the criteria (water conservation and LST) from the output. Based on higher water conservation and cooling surface, results show that the optimal percentages of grasslands, bare land, and croplands in the APENWC approximately are 60, 23, and 11 %, respectively, which will mitigate the drying and warming surface environment; this suggests that approximately 5348 km^2 of bare land and 1163 km^2 of croplands will be transformed into grasslands. These findings provide vital information for maintaining ecohydrological sustainability in the APENWC and similar areas. (Abstract L8-L30)

However, some studies have pointed out that excessive vegetation restoration declines ecohydrological sustainability, such as soil drying (Jia et al., 2017b; Zhang et al., 2018), indicating that incorporating proper land use/cover into decision-making suitable for the APENWC standing perspective of ecohydrological sustainability is urgently required. (L75-L78)

This study identifies the optimal mixture of land use/cover to expand the percentage of grasslands to 60 % and mitigate the drying effects due to vegetation restoration, for the first time. Previous studies have optimised land use/cover by setting different weights for economic profit and ecological parameters in scenario simulations using a Multi-Objective Genetic Algorithm (Kaim et al., 2018; Kucsicsa et al., 2019; Yang et al., 2020). The experimental design was limited owing to insufficient theoretical studies on parameter settings (Ding et al., 2021) and could not meet the government's preset values (e.g., 60 % grassland). Therefore, we first quantified the impacts of the LUCC by simulating land uses/cover scenarios with static climatic forcing in the CLM. We investigated the spatially averaged impacts of LUCC in real scenarios from 2000 to 2015, as well as the impacts of a single type of LUCC in idealised scenarios with maximised LUCC. These spatially averaged impacts were attributed to the synergy of different LUCC types. In addition, we further designed different LUCC scenarios by setting the percentage of grasslands as 60 % and varying the percentages of croplands and bare land in the CLM5.0 to identify the optimal mixture of land use/cover in the APENWC based on the higher water conservation and cooling surface. (Introduction L84-L95)

2 Regarding the findings, please specify how much of the current land cover should be changed in order to achieve the optimal mixture you are proposing?

Response: LUCC from current land user/cover (53 % of grasslands, 29.9 % of bare land, and 12.5 % of croplands) to approximately EXP_602113 (60 % of grasslands, 23 % of bare land, and 11 % of croplands) will mitigate the drying effects. It indicates that approximately 6.9 % of bare land and 1.5 % of croplands transformed into grasslands. Therefore, 5348 km^2 of bare land and 1163 km^2 of cropland should be changed to grasslands.

This expression is kept consistent in the paper as follows:

Based on higher water conservation and cooling surface, results show that the optimal percentages of grasslands, bare land, and croplands in the APENWC approximately are 60, 23, and 11 %, respectively, which will mitigate the drying and warming surface environment; this suggests that approximately 5348 km2 of bare land and 1163 km2 of croplands will be transformed into grasslands. (Abstract L26-L29)

Therefore, vegetation restoration strategies in the APENWC should use an appropriate mixture of land use/cover, such as EXP_602311. This indicates that approximately 6.9 % (5348 km^2) of bare land and 1.5 % (1163 km^2) of croplands transformed into grasslands. (L325-L328)

Finally, assessing the five proposed LUCC scenarios related to the Chinese government's long-term ecological plan based on lowering LST and increasing WC, the optimal mixture of LUCC in the APENWC is approximately 60 % grasslands, 23 % bare land, and 11 % croplands respectively; this suggests that approximately 6.9 % (5348 km^2) of bare land and 1.5 % (1163 km^2) of croplands will be transformed into grasslands to achieve the optimal mixture of LUCC. (Conclusion L406-410)

3 The authors make projections for 2035, however, the atmospheric forcing data for the future is not specified in the experimental setup. What are the climatic scenarios you are using to evaluate these projections?

Response: The study doesn't deal with future climate scenarios. That's a misrepresentation. My aim is not projections. I revised the whole article about the wrong expression.

Previous studies isolated respectively the effects of LUCC and climate change to better understand the water and energy processes in APENWC (Xue et al., 2019; Wang et al., 2020) and found that vegetation restoration induces soil drying in APENWC (Yang et al., 2021a). This paper aims to mitigate drying effects by adjusting the mixture of different land use/cover in vegetation restoration. It is the research gap we want to fill and why we only consider the impacts of the LUCC. So we keep the atmospheric forcing field constant, thereby isolating the effects of the LUCC. Additionally, to quantify the impacts of LUCC, we ran one control experiment and five sensitive experiments with different land use/covers (shown in Table 1) and static climatic forcing. The differences between the control experiment and sensitive experiments were been used to isolate/quantify the impacts caused by LUCC. This method has been widely used(Breil et al., 2020; Wang et al., 2020). The two results of the impacts of LUCC under climatic forcing in 2000 and 2015 are almost the same (shown in Table 2 and Table 3). This means the impacts of LUCC in our study area are rarely influenced by climate forcing. So we use the atmospheric forcing data of 2015 (Table 3) to represent the result of impacts of different LUCCs and pursue an optimal land use/cover in our study area. I also discuss it in the Discussion section.

Table 1. List of numerical simulations. (It was shown in Table 1 in the manuscript)

Table 1 numerical simulations for future scenarios.

Experiment	Land use/land cover	Forcing	Grid
CN2015	2015	2000-2015	0.1°
EXP_602113	grasslands60%, bare land 21%, croplands13%	2000-2015	0.1°
EXP_602311	grasslands60%, bare land 23%, croplands11%	2000-2015	0.1°
EXP_602509	grasslands60%, bare land 25%, croplands9%	2000-2015	0.1°
EXP_602707	grasslands60%, bare land 27%, croplands7%	2000-2015	0.1°
EXP_603004	grasslands60%, bare land 30%, croplands4%	2000-2015	0.1°

Table 2. The spatially weighted averaged differences of LST and WC as different vegetation restoration efforts from 2015 to 2035 under the climate forcing 2000

	Δ LST (°C)	Δ WC (mm yr^{-1})
EXP_602113	-0.04	-4.39
EXP_602311	-0.01	0.86
EXP_602509	0.02	6.09
EXP_602707	0.05	11.34
EXP_603004	0.09	19.25

Table 3. The spatially weighted averaged differences of LST and WC as different vegetation restoration efforts from 2015 to 2035 under the climate forcing 2015 (same as the Table 2 in the manuscript)

	Δ LST (°C)	Δ WC (mm yr^{-1})
EXP_602113	-0.04	-4.39
EXP_602311	-0.01	0.86
EXP_602509	0.02	6.09

EXP_602707	0.05	11.34
EXP_603004	0.09	19.25

This expression is kept consistent in the paper as follows:
Based on higher water conservation and cooling surface, results show that the optimal percentages of grasslands, bare land, and croplands in the APENWC approximately are 60, 23, and 11 %, respectively, which will mitigate the drying and warming surface environment; this suggests that approximately 5348 km2 of bare land and 1163 km2 of croplands will be transformed into grasslands. (Abstract L26-L29)

This study identifies the optimal mixture of land use/cover to expand the percentage of grasslands to 60 % and mitigate the drying effects due to vegetation restoration, for the first time. (L84-L85)

The government plan aims to 1) expand the percentage of grasslands to 60 % and 2) transform bare land and croplands into grasslands (China state council, 2017; National development and reform commission, 2019). (L311-L312).

Comparing the present land use/cover, EXP_602113 and EXP_602311 resulted in a cooling surface, whereas EXP_602509, EXP_602707, and EXP_603004 resulted in a warming surface. Additionally, EXP_602113 induced drying, whereas EXP_602311, EXP_602509, EXP_602707, and EXP_603004 induced high WC (Table 2) (L320-L322)

Previous studies isolated respectively the effects of LUCC and climate change to better understand the water and energy processes in APENWC (Xue et al., 2019; Wang et al., 2020). Yang et al. (2021a) found that vegetation restoration induces soil drying in APENWC. This paper aims to mitigate drying effects by adjusting the mixture of different land use/cover in vegetation restoration. It is the reason why we only consider the impacts of the LUCC. We designed the experiments with different land use cover/use and static climatic forcing. This method has been widely used to eliminate the influence of other factors and isolate the effects of the LUCC (Wang et al., 2021b; Breil et al., 2020). However, the water and energy processes are affected by changes in both LUCC and climate and vegetation-climate coupling is a complex process. It is worthwhile exploring the contribution of background climate in the future study. (Discussion L385-L392)

Specific comments:

4 Abstract:

"large-scale land use/cover change (LUCC)" What do you mean by large-scale?

Response: The "large-scale" LUCC is used to differentiate the local-scale LUCC. The former's scope area is larger and time span is longer. There is no clear numerical value of area scope and time span to define the difference between the large-scale LUCC and local-scale LUCC. The obvious signal is that the former influences regional and even global climates through atmospheric circulation (Claussen et al., 2001; Bathiany et al., 2010; Bala et al., 2007; Betts et al., 2007)
In China, the term "large-scale" was used to describe LUCC due to: (1) duration and extent. Since the 1980s, the Chinese government has initiated several large-scale revegetation programs such as "Grain for Green", and "Northern China's Vegetation Belt". These efforts have resulted in a 10%

increase in the leaf area index and an approximately 41.5 million hectares increase in forest area (Li et al., 2018b). Additionally, the Chinese government has planned to expand forests by approximately 220,000 km² (Jia et al., 2017a). (2) interaction with regional and global Climate. For example, the LUCC over eastern China has produced an anomalous cyclonic circulation from the surface to the mid-troposphere over northeastern China and the Korean Peninsula, resulting in increased rainfall (Hu et al., 2015). The LUCC on the Tibetan Plateau intensified The Indian summer monsoon and weakened East China summer monsoon, leading global precipitation slightly increases (Cui et al., 2006). Therefore, we use "large-scale" to describe the vegetation restoration in China.

In APENWC, The croplands decreased by 3922 km^2 and the grasslands increased by 6372 km^2 from 1993 to 2010 (Wang et al., 2020). The LUCC in the APENWC enhances the moisture recycling process and contributes more precipitable water (Wang et al., 2020; Wang et al., 2021b). Previous studies used the term "large-scale" in APNEWC to describe LUCC (Table 4), so I used "large-scale" LUCC in the study area in my original manuscript. But thanks for your question/suggestion, I think it's not proper and accurate after the literature review since no present study has reported the LUCC in APNEWC will influence the other regions and global climate by atmospheric circulation. Therefore, we deleted "large-scale" to describe the vegetation restoration in APENWC to be more accurate in this paper.

This expression is kept consistent in the paper as follows:

The Chinese government has implemented large-scale vegetation restoration projects and plans to expand the percentage of grasslands to 60 % (**Abstract** L8-L9).

The agricultural pastoral ecotone in Northwest China (APENWC), which is mainly interlaced by grasslands, croplands and bare land, is one of the largest agropastoral ecotones worldwide (Li et al., 2018a; Xue et al., 2019; Yang et al., 2021a). Since the 1980s, The land surface vegetation has been experiencing changes over the last decades due to implemented policies, such as the "Grain for Green Project" and "Three-North Shelterbelt" (Cao et al., 2015; Wei et al., 2018; Liu et al., 2019) (L69-L73).

Table 4 the previous research that uses the term "large-scale" related to the study area

Research	Term	Study area
Wang et al. (2020)	Large-scale change in land use/cover	APENWC
Jia et al. (2017b)	Large-scale afforestation	The Chinese Loess Plateau (the APENWC is located in the northwest)
Xu et al. (2022)	Large-scale ecological restoration projects	APENWC

Note: Wang and Xu don't use the APENWC as the name of the study area.

5 "Negative environmental effects of excessive re-vegetation have emerged."
What effects?

Response: There is always a trade-off between the introduction of plants and water consumption (Jia et al., 2017a). Artificial plants consume more moisture, rapidly depleting local soil moisture and leading to a dry layer in the loess profile (Ren et al., 2018; Fu et al., 2017). Soil drying by excessive re-vegetation in the study area has been reported (Jia et al., 2017b; Zhang et al., 2018). I deleted all “negative effects” and used “soil drying” to be more specific.

This expression is kept consistent in the paper as follows:
However, excessive vegetation restoration consumes more moisture and causes soil drying in the agro-pastoral ecotone of Northwest China (APENWC). (L9-L10)

6“Sustainable ecohydrological environment” What is a sustainable ecohydrological environment? Does it mean biodiversity? Water provision? Please specify.
Response: I deleted “sustainable ecohydrological environment” and used “ecohydrological sustainability” to keep consistent in my paper. Ecohydrological sustainability studies the interaction between water and ecological systems. This paper focuses on water conservation. The impacts of other factors are limited or have been considered in WC. The reasons are as follows:

Ecohydrological sustainability highlights water as a key driver of ecosystem service (Zalewski, 2021). The ecohydrological sustainability related to water consists of water provision, soil loss, and biodiversity. (1) Water provision. WC is defined as the difference between the income and expenditure of water. It represents the ability of an ecosystem to store or retain water. Therefore, WC represents the amount of water that can be supplied to the region's interior (Bai et al., 2019; Costanza et al., 1997). (2) Soil erosion. Severe soil erosion causes a widespread loss of topsoil and convert the once-flat plateau into hills and gullies, leading to catastrophic floods and droughts on the Loess Plateau of China (Chen et al., 2007; Fu et al., 2017). Since the 1990s, vegetation restoration converted sloping (more than 15°) farmland into forests and grasslands, leading to a soil-retention rate of 84.4% on slopes of 8°-35° (Fu et al., 2017). However, in most areas of APENWC, soil erosion was 0–200 (t km^{-2} yr^{-1}) in 2000 and 2008 (Fu et al., 2011), and the soil erosion rate showed no significant change during the Grain-for-Green Project (Fu et al., 2017). This is because APNEC is not a gully-hilly area, where intense soil erosion occurs. The influence caused by soil erosion due to vegetation restoration on the ecohydrological sustainability of APENWC is limited. (3) Biodiversity. Water content between 20 and 60 cm soil depth and soil properties in the study area can be regarded as the primary factors explaining plant and soil fungal diversity (Yang et al., 2017; Wang et al., 2021a). The influence of soil water content on ecohydrological sustainability is included in WC. Additionally, Deng (2022) reported that WC is the crucial factor that needs to be improved in the APENWC based on the ecological sustainability evaluation of vegetation restoration. WC has been used as a type of regulating the ecohydrological sustainability due to LUCC (Deng, 2022; Bai et al., 2019; Zeng and Li, 2019). Therefore, the enhancement of ecohydrological sustainability in the study area mainly focuses on leading to a higher water conversation.

This expression is kept consistent in the paper as follows:
The optimal mixture of land use/cover in the APENWC incorporated into vegetation restoration strategies to mitigate the drying effects remains unclear. (L10-L11)

Ecohydrological sustainability studies the interaction between water and ecological systems, highlighting water as a key driver (Zalewski, 2021). The ecohydrological sustainability related to

water consists of water provision, soil erosion, and biodiversity. (1) Water provision. WC is defined as the difference between the income and expenditure of water. It represents the ability of an ecosystem to store or retain water. Therefore, WC represents the amount of water that can be supplied to the region's interior (Bai et al., 2019; Costanza et al., 1997). (2) Soil erosion. Severe soil erosion causes widespread loss of topsoil and the conversion of the once-flat plateau into hills and gullies, leading to catastrophic floods and droughts in the Loess Plateau of China (Chen et al., 2007; Fu et al., 2017). Since the 1980s, vegetation restoration converted sloping (more than 15°) farmland into forests and grasslands, leading to a soil-retention rate of 84.4 % on slopes of 8 °–35 ° (Fu et al., 2017). However, in most APENWC areas, the soil erosion was 0–200 (t km^{-2} yr^{-1}) in 2000 and 2008 (Fu et al., 2011), and the soil erosion rate showed no significant changes during the Grain-for-Green Project (Fu et al., 2017). This is because APNEC is not a gully-hilly area, where intense soil erosion occurs. Therefore, the influence of soil erosion due to vegetation restoration on the ecohydrological sustainability of the APENWC is limited. (3) Biodiversity. During vegetation restoration, the diversity of soil fauna and fungal communities increases, because fast-growing plant species produce large amounts of litter and root exudates, and external resources continually enter the soil food web, promoting nutrient cycling (Wu et al., 2021; Yang et al., 2021b). Water content between 20 and 60 cm soil depths and soil properties can be regarded as the primary factors explaining plant and soil fungal diversity, regardless of land use/cover type (Yang et al., 2017; Wang et al., 2021a). The influence of soil water content on ecohydrological sustainability was included in WC. Additionally, Deng (2022) reported that WC is a crucial factor that needs to be improved in APENWC based on the ecological sustainability evaluation of vegetation restoration. WC has been used as a type of regulating the ecohydrological sustainability due to LUCC (Deng, 2022; Bai et al., 2019; Zeng and Li, 2019). Therefore, the enhancement of ecohydrological sustainability in the study area mainly focuses on improving water conservation.
(L364-L384)

7 What do you mean by “hydroclimatic impacts”?

Response: Thanks! I deleted the “hydroclimatic impacts” and changed to other expressions.

The water and energy processes refer to the continuous exchange of vapor and heat at the interface between the land and the atmosphere under the drive of atmospheric circulation and solar radiation forcing (Perrier, 1982; Dickinson, 1983). LUCC alters water and energy exchanges between the atmosphere and land surface, leading to changes in ET, LST, and water conservation(Cherubini et al., 2018; Zeng and Li, 2019). I used “hydroclimatic impacts of LUCC” to express “the LUCC’s impacts on the water and energy processes” in the original manuscript. I deleted the “hydroclimatic impacts” because “hydroclimatic impacts” is not an academic term. I changed to other expressions such as “water and energy processes response to bare land to grasslands”.

This expression is kept consistent in the paper as follows:

Determination of appropriate land use/cover pattern based on the mitigating drying effects to support ecohydrological sustainability in the agro-pastoral ecotone of northwest China (Title)

Furthermore, to identify the proper land use/cover pattern to mitigate drying, we designed different LUCC scenarios by varying the mixture of land use/cover in the CLM5.0 and compared the criteria (water conservation and LST) from the output. (L24-L26)

Criteria of appropriate land use/cover pattern (Title 2.5 Line 192)

Analyses of the water and energy processes response to bare land to grasslands were conducted in bare land to grasslands and grasslands to bare land intense grid cells (L243-L245)

8 “Our findings suggest the percentages of grasslands, bare land and croplands in the APENWC for 2035 approximately is 60, 23, and 11 %, respectively” It is not clear where these land cover projections come from. Is this your recommendations for an optimal land cover mixture that mitigate the negative impacts? how much of the current land cover should be changed in order to achieve the optimal mixture you are proposing?

Response: We designed different LUCC scenarios by setting the percentage of grasslands as 60 % and varying the percentage of croplands and bare land in the CLM and compared the criteria (higher water conservation and cooling surface) from the output. Based on higher water conservation and lowering surface temperature, the optimal mixture of LUCC to mitigate drying was found. We revise the text and tables of experimental design in paper:

Table 5. List of numerical simulations. (same as the Table 1 in the manuscript)

Experiment	Region/points	Land use/land cover	Atmospheric Forcing	Grid
Yanchi_grass	Yanchi	grasslands	2015-2018	0.0001 °
Yanchi_crop	Yanchi	croplands	2015-2018	0.0001 °
18_grass	18	grasslands	2015-2018	0.0001 °
20_grass	20	grasslands	2015-2018	0.0001 °
39_grass	39	grasslands	2015-2018	0.0001 °
42_crop	42	croplands	2015-2018	0.0001 °
CN2000	Domain	2000	2000	0.1 °
CN2015	Domain	2015	2015	0.1 °
EXP2000	Domain	2000	2015	0.1 °
EXP2015	Domain	2015	2000	0.1 °
EXP_grass	Domain	Grasslands	2015	0.1 °
EXP_bare	Domain	Bare land	2015	0.1 °
EXP_crop	Domain	Croplands	2015	0.1 °
EXP_602113	Domain	grasslands60%, bare land 21%, croplands13%	2000-2015	0.1 °
EXP_602311	Domain	grasslands60%, bare land 23%, croplands11%	2000-2015	0.1 °
EXP_602509	Domain	grasslands60%, bare land 25%, croplands9%	2000-2015	0.1 °
EXP_602707	Domain	grasslands60%, bare land 27%, croplands7%	2000-2015	0.1 °
EXP_603004	Domain	grasslands60%, bare land 30%, croplands4%	2000-2015	0.1 °
Yanchi_laisai	Yanchi	Yanchi	2015	0.0001 °
Yanchi_height	Yanchi	Yanchi	2015	0.0001 °

It is the recommendation for an optimal land cover mixture that mitigates drying.

this suggests that approximately 6.9 % (5348 km2) of bare land and 1.5 % (1163 km2) of croplands will be transformed into grasslands to achieve the optimal mixture of LUCC.

This expression is kept consistent in the paper as follows:

Furthermore, to identify the proper land use/cover pattern to mitigate drying, we designed different LUCC scenarios by varying the mixture of land use/cover in the CLM5.0 and compared the criteria (water conservation and LST) from the output. Based on higher water conservation and cooling surface, results show that the optimal percentages of grasslands, bare land, and croplands in the APENWC approximately are 60, 23, and 11 %, respectively, which will mitigate the drying and warming surface environment; this suggests that approximately 5348 km^2 of bare land and 1163 km^2 of croplands will be transformed into grasslands. (Abstract L24-L29)

In addition, we further designed different LUCC scenarios by setting the percentage of grasslands as 60 % and varying the percentages of croplands and bare land in the CLM5.0 to identify the optimal mixture of land use/cover in the APENWC based on the higher water conservation and cooling surface. (Introduction L92-95)

To explore a proper mixture of land use/cover in the APENC, we set the percentage of grasslands as 60 % and varied the percentages of croplands and bare land in EXP_602113, EXP_602311, EXP_602509, EXP_602707, and EXP_603004. (L163-L165)

Finally, assessing the five proposed LUCC scenarios related to the Chinese government's long-term ecological plan based on lowering LST and increasing WC, the optimal mixture of LUCC in the APENWC is approximately 60 % grasslands, 23 % bare land, and 11 % croplands respectively; this suggests that approximately 6.9 % (5348 km^2) of bare land and 1.5 % (1163 km^2) of croplands will be transformed into grasslands to achieve the optimal mixture of LUCC. (Conclusion L405-409)

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