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Discussion on technical methods of forest land alteration investigation in Inner Mongolia

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Abstract: to improve the quality of land change survey results in Inner Mongolia Autonomous Region , To update the forest area in a timely manner a picture ,combined with the first pilot flag , for counties Woodland Change Investigation , Using Remote sensing interpretation technique , National Forest Land Annual update information, etc. , to ground class , Woodland range , Admin Properties etc Change Chart patch changes , To form the current forest land database and the forest land change database in Inner Mongolia Autonomous Region . The article analyzes key technical side of woodland change survey

Method , indicates an existing problem , and make the appropriate recommendations .

Keyword: Woodland ; Change ; Remote Sensing interpretation zoning ; Woodland a Chart Figure category number :S 718.57 Document identification code : B

doi:10.13387/j.cnki.nmld.2016.06.047

The land change investigation in Inner Mongolia Autonomous Region is the flag County administrative Area to units , base on forest land conservation and Utilization planning woodland landing Results , combined with the investigation of forest resources in Inner Mongolia Autonomous Region and the second national land survey data ,fixed woodland 1 Chart Database , To form the current forest Background Database , then collect change interval period due to forestry sutra Camp Management information that results in woodland changes , Zoning through remote sensing , now Verification and other technical means , Mastering the spatial distribution and management of forest land changes Property Change information , output Forest change survey results , Update the number of Woodlands Gallery , The job is in the national Unification _ The Woodland annual update information for is flat platform , new technology , exploring and studying new methods . in the Inner Mongolia in summary 2013 year Chifeng Hexigten Qi and Tongliao Kailu on the basis of pilot work on land change investigation in counties ,2016 year full start Moving whole area forest change investigation work , Combining the actual situation in the region , in _ steps to improve the idea and method of forest change investigation , Troubleshoot key technologies Hard points , forming scientific and practical technical procedures , To establish the Inner Mongolia Autonomous Region with Union City , Flag County forestry authorities up and down , Heli Advance , Efficient working mechanism , The final construction of scientific and sustainable forest land changes Survey Technical system and organizational system , Set the foundation for future annual Woodland Administration Systems .

1. purpose of the change

Forest land Change survey in Inner Mongolia Autonomous Region is in woodland 1 Chart based on , Woodland range by year , Woodland Protection Take advantage of , forest Land Management Properties Change survey . this way to keep woodland i chart " up-to-date " ,, time-sensitive and practical , Full Play Woodland " First " the chart ""function and value , in time

The latest and most reliable data for the forestry sector at all levels , is raising woodland supervisory capability , Enforcing Woodland protection use management , to deepen government macros an important foundation and support for decision Management . so , developing woodland change More investigation of this work is necessary . But for a variety of reasons , past build Set Woodland " " a chart has a certain flaw , and actually exist one fixed error , need to be modified by forest change , with better adapt to and meet Woodland Protection management , Economic and social development and the need for eco-civilization construction .

2. What's changed

Forest Change survey focuses on the conversion of woodland and non-woodland to turn out the problem , transfer between various classes within woodland especially forest go to turn out problem , and Woodland Admin Property Change Issue .

2.1 Woodland Range Change Survey

One is new woodland . including : added forest for forestry project construction Place (If converting cropland to forest , Ecological engineering construction of mine vegetation restoration) ; for : woodland increased by afforestation (such as channel greening , Farmland Shelterbelt construction); woodland that has been increased by land use changes (If you are above the county level) Government approved from non-woodland to woodland ; Pre-zoned woodland .

Two is to reduce woodland . includes : under related land Administration Law Law , approved reduced woodland ; Pre-survey forest with zoning errors to ; Land requisition reduced for occupancy ; changed because of land use and reduced woodland (If the forestry Department of the People's Government at or above the county level) Gates approved for conversion from woodland to non-woodland .

2.2 Forest Land Range Inland category change survey

One is the New Forest plot . convert from non-forest to country

Home Special rules for shrub woodlands or forest plots with woodland additions .

Two is reduced forest plots . As a result of national special provisions irrigation wood woodland or forest plots reduced by forest Land .

Three is a leaky or wrongly classified forest plot . A plot that causes forests to increase or decrease as a result of a pre-survey wrongly classified or block .

Four is the land of the other woodlands. . includes _ shrubs Woodland , sparse Woodlands , plots that are not converted between classes such as Woodlands .

2.3 Manage Property Change survey

- is woodland ownership . transitions between national and collective Forest , and Ling Cooperative operations in collective Woodland , Farm households contracted byBattalion , Transformation between the operating forest of collective economic organizations , should be based on the Clearance Certificate of Ownership verification .

Two is the forest category . National Public Welfare Woodland , Local public welfare forest Place ,, change between commercial woodlands , should be based on the forest classification area to define results for verification .

Three is a forest type . shelterbelt , Special purpose forest , Economic Forest , with material forest Forest Change investigation , to verify and document the forest type .

Four is the engineering category . changes between project categories should be verified according to the implementation of the forest engineering construction project.

3. Technical Methods

3.1 Technical Route

Technical route for land change investigation in Inner Mongolia Autonomous Region is banner , County

Administrative area as change Investigation Unit , drop to Woodland bound (or latest two categories of investigation results are based on, Collection master interval inside (closing 2015 Year month on Day) Woodland range for ,Woodland Benefits using status and woodland management attributes change information , pre-late application high resolution satellite Remote Sensing Image comparative analysis , Interpretation zoning Changes spots , Combining forestry management data , through-situ investigation verification after , determine woodland changes , output Current period forest change survey into Fruit , rolled over , Change the Inner Mongolia woodland database . mainly includes collection of data , in- situ Verification Investigation , Results To 3 main technical links .

3.2 Change Step

3.2.1 data collection and processing analysis

3.2.1.1 data collection

collects data including : ① base material for forest change survey . to collect the prior period of the change Unit forest land Remote sensing image and woodland down-bound database , High resolution remote sensing data for the current period and other basic reason information . ② forest management information . Collection Change period afforestation , forest harvesting , Forestry Engineering construction , Occupation Collection Forest to , Forest category zoning definition , forest Disasters , Additional planning adjustments design drawings and acceptance information . ③ related planned materials . includes County field Land use master plan , Forestry development planning , National Economic and social Development planning , Active Ribbon planning , Woodland Protection Utilization Plan , town Planning and Traffic Water Conservancy plan information .

3.2.2 processing analysis for data

① Processing of remote sensing images . to overwrite the high resolution of the pilot, rate data for positive injection correction , Fusion enhancement . Standard split cropping, and so on . To process . ② interpretation Zoning for remote sensing images . Add This remote sensing image stack to pre-remote sensing image and pre-forest database , based on the build Interpretation sign , Analyzing remote sensing image feature changes , reading area underline woodland changes , filling out remote sensing interpretation zoning spots Factor record table , eventually form a vector layer for remote sensing interpretation zoning . ③ handling of forestry management data . based on relevant data and Technical conditions , can take different methods , will occupy the forest to , afforestation , forest Harvesting , Forest disaster information , and ForestIndustry Construction , Woodland ownership Change , Forest category zoning defined or Other planning adjustments, and more information figure , vectorization , and create a corresponding Properties Database , form forest management data vector diagram . ④ forests Change base map production . convert woodland " _ Chart , Remote Sensing monitoring The analysis results and the forestry management data vector map is superimposed , via Contrast Analysis , To form a woodland change Survey bottom chart .

3.2.3 investigate for verification

Verification of woodland change patterns using internal industry verification and on-site nuclear Real Two ways , first through remote sensing imagery and forestry management funds in-material industry verification changes plaque and its attribute factor , inside industry cannot verify The patches for the are to be investigated in situ () . in principle investigate errors caused by the forest to non woodlands , forest-land classes become non-forest-like patches to verify in-situ, in- Situ Verification Survey , you need to take a corresponding spot of the In- situ photos and record the camera coordinates .

One is the remote sensing image and forestry management data corresponding to the interpret changes spots . based on base geographic data , Woodland database ,Forest business Management Information determine attribute factor , Direct Chronicle related factor ; cannot determine attribute factor based on related data , should donecessary supplemental investigation .

Second, remote sensing imagery does not correspond to forestry management data interpret changes spots . based on remote sensing interpretation and Woodland database validation property factor , can be filled out directly ; based on the above information cannot be true fixed attribute factor , especially woodland change to non-woodland spots , should go to In- situ Supplemental survey , Chronicle related attribute factor .

The Third is a map of the changes not reflected by remote sensing images and no remote Image coverage area patches , can refer to design or acceptance data , or make a supplementary investigation , Chronicle the status of Patches , position and phase off property factor .

3.2.4 diagram Warehousing

will be investigated to verify that the woodland changes are spotted , by technical specifications Request vectorization above figure , Establish forest change database ,and its update to Woodland chart " database .

3.2.5 Results Rollup

Submit results content and requirements based on Woodland change survey , from the county level one provincial one form of country , Step- by-step Summary Woodland Change investigation to Fruit , formation of provincial and county level forest Woodland Change Survey summary of the results analysis results .

4. questions and discussions

4.1 Remote Sensing image timeliness and quality to be improved

State Forestry Administration requires , update point for forest change survey a to the end of the year (that year's month to Day). Woodland change All remote sensing images to be purchased by the State Forestry Administration , Unification Place ,, Unified offer . but , affected by weather and other factors , country Remote sensing images from the Forestry Administration is often more than the previous, Some even year ahead . also has image sharpness Not enough , Some images are obscured by clouds ,cause during change period , many Blocks that actually have changed cannot be reflected on remote sensing images out , easily cause change block omission , To some extent the The accuracy of the woodland change investigation is .

4.2 There is a deviation in woodland data

Woodland change work is in woodland a picture on the , because the This , forest land data accuracy directly related to woodland change investigation ease degree . early woodland fall in Inner Mongolia Autonomous Region , due to Data volume , working schedule tight , Task Heavy , Some small classes block blocks cannot be verified in -situ, plus some local investigators forest expertise not familiar , Leading to the previous forest land boundary of the Results Quality is not high , This results in forest change work , Fix The forest land data for the earlier period of is occupied for a long time .

4.3 changes in forestry management data and remote sensing interpretation zoning spot overlap less

based on changes in the characteristics of the remote sensing images before and after two phases , To knot The database of forest landing results , Discovery of remote sensing interpretation change spots multiple , but with forest management patches overlay , overlapping spots less , main reason for forestry business data record space set and properties deviations from actual situation , Some forestry business activities no records , also , The is partly due to the fact that the woodland is bounded by The class wrongly classified creates a.

4.4 Forest Land Change survey data and forest resources Category II survey data failed to converge

Forest land Change survey and forest resources two types of investigation have related , The is different from the same . Woodland Change investigation focuses on woodland scope , forest Scope of changes in the inland categories of the survey , main purpose is clear forest

Builders Get value returns .

4.5 managing forests with ecological value priority for science management

Evaluation Display , dominant tree species have higher unit area ecology value , Eco-value priority forest

management-oriented scientific selection Advantage Tree ,optimizing forest structure , Give full play to forest ecosystem services Maximum value . through scientific determination , coniferous forest different forests Age Group net productivity per unit area has been cooked forest > near Ripe forest > mature forest > medium Age forest > Large to small sort situation in young forests , Description into ,the Ripe forest is in the growing season , country "" Forest tending procedures the age group division and age level requirements for are subject to further revision , scope boundaries , hold woodland sites , does not involve tree species , Tree Height , Chest path , " Forest Factor survey " , does not count the volume . Forest resources Source The second type of investigation is based on the Woodland Change survey , adds Forest factor , Forest eco-Status , Eco-functional Level , Forest management measures investigate content , objective to ascertain forest resources and ecological work status . due to investigation contents , technical standards and work requirements different ,Forest Land Change survey data and forest resources Category II survey data Inevitably there are differences , How to make two sets of data valid title then , reaches A survey, Two results The purpose of the , Improve work rate , is an urgent need for the forest resources Management in Inner Mongolia Autonomous Region issues .

4.6 Forest Land Change survey data and forest Division definition data not to interface effectively

Woodland Fall-downs are organized by the Forest resources Department of the flag county. into , and public welfare forest data by Flag County's public welfare forest station (does not participate in a diagram " construction " is responsible for completing the, so , Forest data and woodlands " one map "" results not well connected , Some places are more severe 's a picture the area of public woodland and the actual compensation object are not - cause problems .

5. closing

The actual work of changing woodland in the Inner Mongolia Autonomous Region , Summary out Forest change data processing method , from remote sensing image inside industry zoning , Forestry Management data collection and processing , Foreign data verification Certificate Verify properties Data processing summarizes specific workflows and action method , Provides a good reference for the subsequent forest change work ..

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