

Understanding the agricultural heritage and its synergy with protected areas

HE Siyuan, Associate Professor

Institute of Geographic Sciences and Natural Resources Research, CAS

8 June, 2024

Content

- 1 Agrobiodiversity in nature conservation**
- 2 GIAHS and biodiversity conservation**
- 3 The consistency of GIAHS and protected areas**
- 4 Aligning GIAHS with China's protected areas**

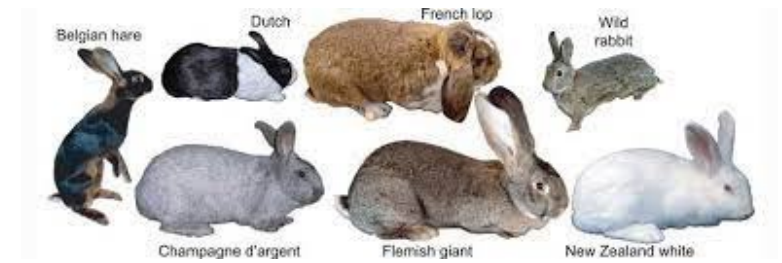
1 Agrobiodiversity in nature conservation

1.1 The concept

- The variety and variability of animals, plants and micro-organisms that are used directly or indirectly for food and agriculture, including crops, livestock, forestry and fisheries.
- Agricultural biodiversity (CBD COP 3 decision III/11, annex I):
 - It includes all components of **biological diversity of relevance to food and agriculture**.
 - It also includes all components of biological diversity **that support the ecosystems of which agriculture is a part** (agro-ecosystems):
 - the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain key functions of the agro-ecosystem, its structure and processes.



Convention on
Biological Diversity



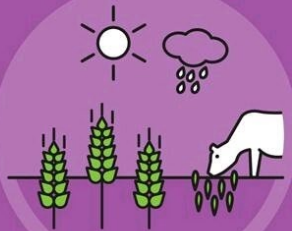

1 Agrobiodiversity in nature conservation

1.2 The meaning

- Positive Significance for the biodiversity conservation
 - Relatively low degree of human intervention
 - Preservation of suitable habitats for wild species
 - Creation of wildlife-friendly habitats through traditional agriculture and breeding practices



Benefits of agricultural biodiversity

- 
1 Offers us diverse and nutritious food
- 
2 Helps plants and animals adapt to climate change
- 
3 Increases the resilience of producers
- 
4 Preserves the health of our ecosystems
- 
5 Improves soil fertility and water quality

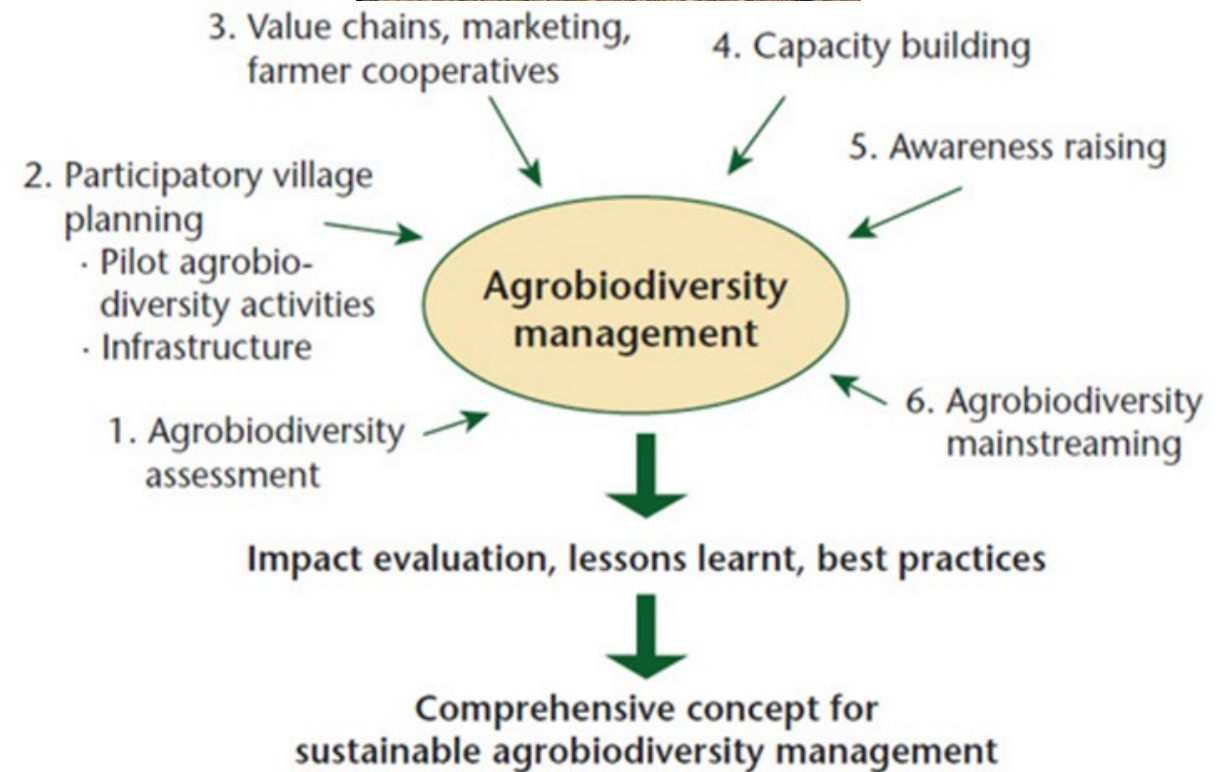
 Food and Agriculture Organization of the United Nations

Working for #ZeroHunger 

1 Agrobiodiversity in nature conservation

1.3 The effort to conserve traditional agrosystems

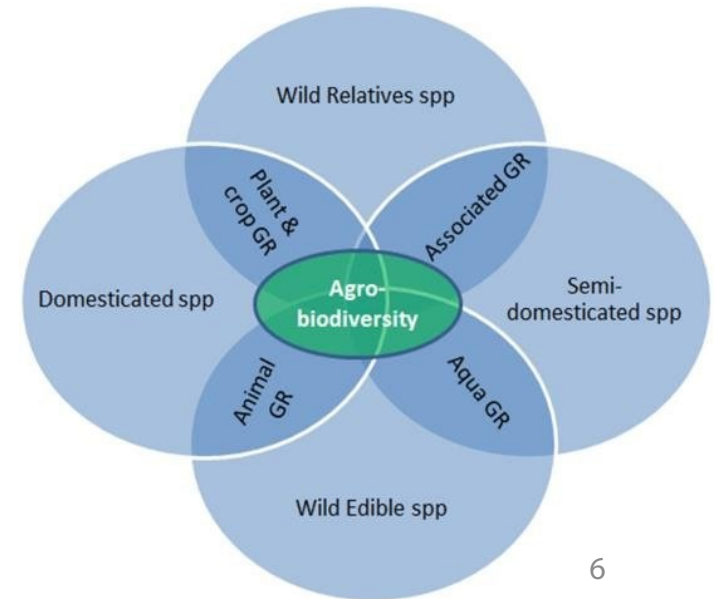
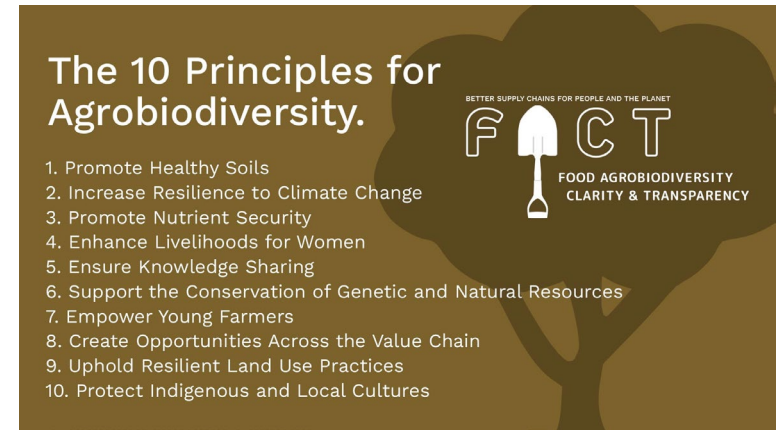
- Consolidation of **local community** resource management systems
- Cultivation of **indigenous** agricultural biodiversity conservation organizations
- Provision of **conservation** management advice for local farmers
- **Innovation** in industry activities and livelihood development pathways
- Creation of **markets** for agricultural products
- Improvement of **legal and regulatory** frameworks
- Development of **new conservation** mechanisms
- Strengthening of **scientific research**



1 Agrobiodiversity in nature conservation

1.4 Lessons and experience of agrobiodiversity conservation

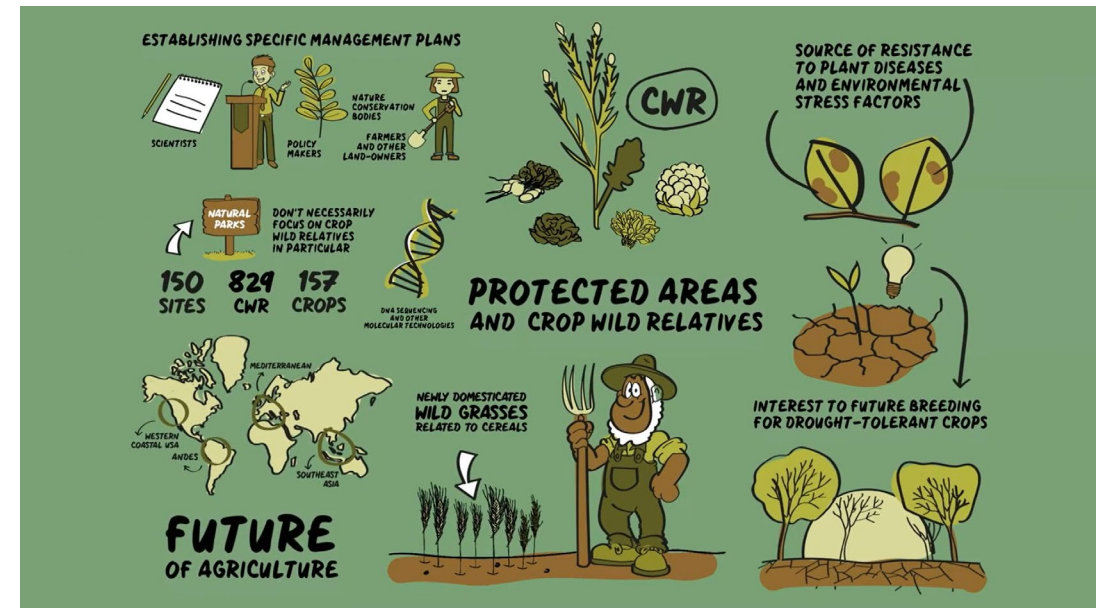
- Core challenges: the interwoven natural-cultural values and the systemic dynamics of agricultural landscapes are not widely understood or recognized, leading to conservation efforts often neglecting the role of agriculture and its communities, or generalizing the negative impacts of agricultural production
- Legal, policy, and diversified support mechanisms: land tenure, production inputs, agricultural technology extension, brand marketing, self-regulation, certification systems, high-value-added products, agritourism
- Governance systems: protected area managers need to move beyond the traditional concept of “fortress conservation” and collaborate with local communities who are traditional guardians of agricultural biodiversity
- Landscape approach: in the complex context of climate change and economic globalization, how to combine traditional and modern methods across multiple lands with different ownerships and functions to balance the demands of production, livelihood, and ecology



2 GIAHS and biodiversity conservation

2.1 Agrobiodiversity and protected areas

- The potential function of protected areas in conserving agricultural biodiversity has not been fully recognized
 - Lack of a legislative framework for protected areas
 - Insufficient attention to the genetic diversity of crop heritage within protected areas
 - Lack of communication between conservation scientists and agricultural biodiversity scientists**
- Increasing recognition of the role of protected areas in conserving agricultural biodiversity
 - Conservation of wild relatives within protected areas
 - Protection of local varieties and traditional livestock within landscape-level protected areas
 - The concept of “biocultural diversity” in conservation



2 GIAHS and biodiversity conservation

2.2 GIAHS and agrobiodiversity

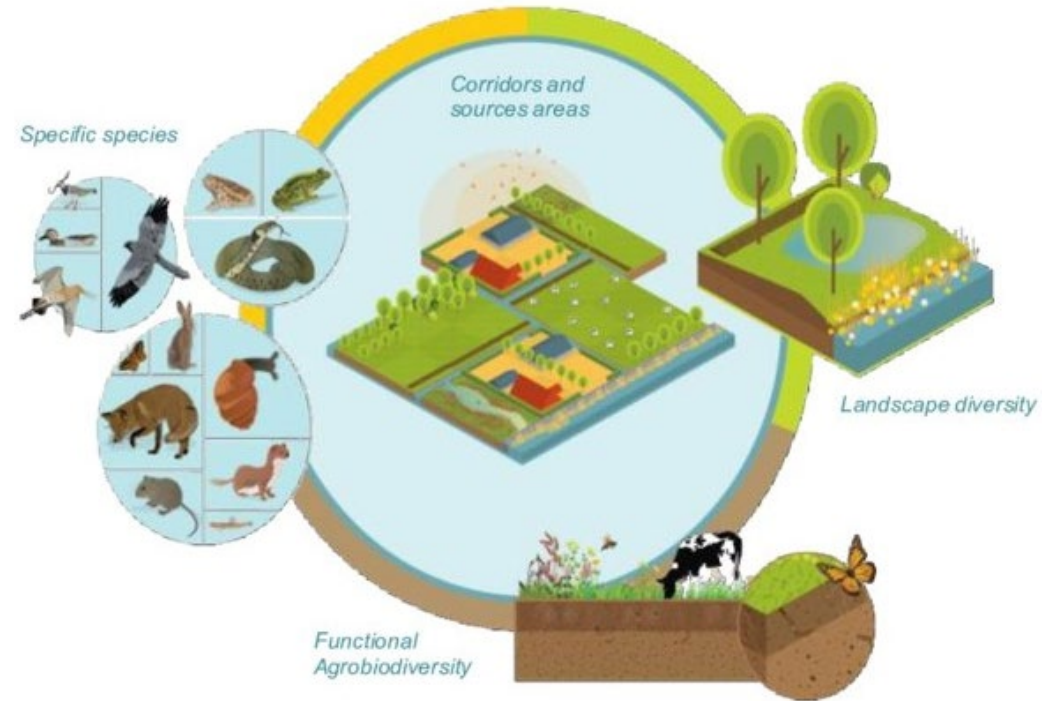
- **Traditional varieties:** Adaptability to natural environments, disease resistance, and yield stability
- **Cultivation methods:** Balancing productivity and ecological sustainability
- **Agro-pastoral systems:** Collaborative development of natural-semi-natural systems and ecological stability
- **Landscape structure:** Landscape stability and diversity of ecosystem services
- **Traditional knowledge:** Agricultural production practices and water-soil resource management
- **Traditional values:** Cultural influence, norms, and constraints
- **Resource governance:** Rural cohesion, social stability, and women's participation and empowerment
- **Circular economy:** Market development, consumption habits, regional development



2 GIAHS and biodiversity conservation

2.3 GIAHS as an landscape conservation

- Landscape-scale conservation can more effectively protect wildlife habitats, provide corridors for species migration under climate change, preserve cultural heritage, and enhance regional and global resilience;
- Ecosystems and ecological dynamics transcend geographical and political boundaries; agricultural (heritage) landscapes can contribute to landscape-scale conservation through their cultural connections
- Considering the relationship between traditional agricultural systems and natural habitats at the landscape scale, creating shared habitat functions, can form strategic landscape conservation and reevaluate the relationship between protected areas and productive lands as mosaics



Erismann et al., 2016 AIMS Agriculture and Food

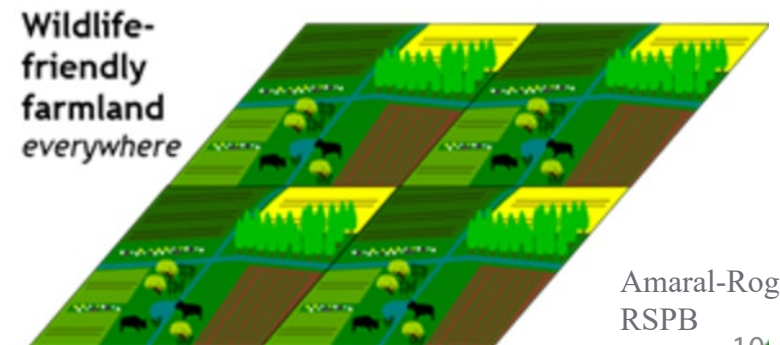
3 The consistency of GIAHS and protected areas

3.1 Landscape heterogeneity, connectivity and sharing habitats

- Conservation compatibility concept: seeking spaces on human-used land that are compatible with biodiversity conservation and maintaining ecological health, integrating key economic activities into conservation areas as one of the potential approaches to nature conservation; land uses with conservation functions are viewed as a "conservation-compatible" continuum, ranging from strictly protected areas (non-production systems) to production systems with various forms of compatibility.
- Land sharing: preserving small natural habitats and extensively cultivated semi-natural habitats in rural areas, farming in ways that minimize the negative impacts of fertilizers and pesticides on non-target organisms.
- Eco-agriculture landscape: enhancing the economic and ecological relationships and interdependencies between agriculture, biodiversity, and ecosystem services.



Land sharing

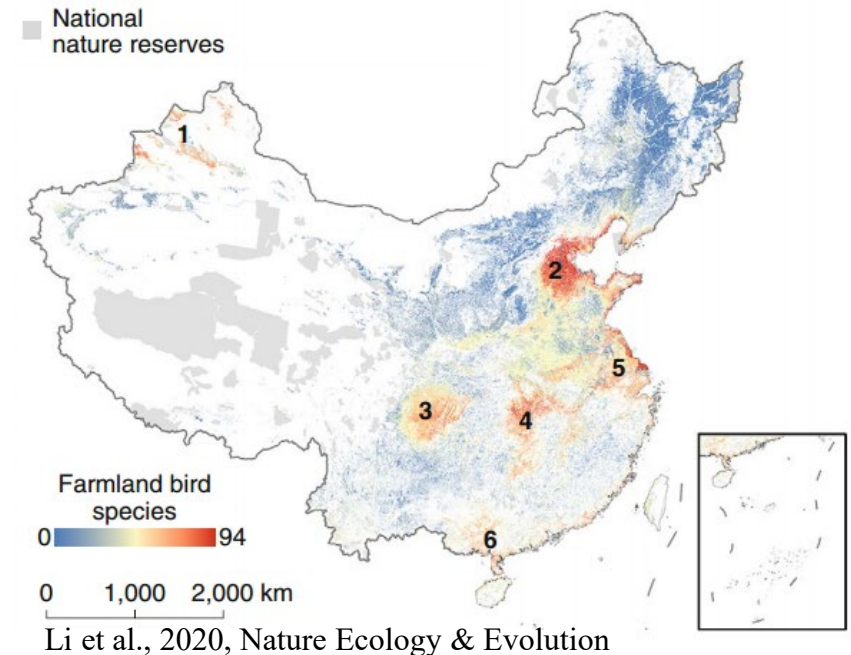


Amaral-Rogers, 2020.
RSPB

3 The consistency of GIAHS and protected areas

3.2 Potentials to be OECMs

- The term ‘other effective area-based conservation measure’ describes a geographic site, which is not within a protected area, that delivers long-term biodiversity conservation under equitable governance and management. OECMs can be governed by a variety of rights holders and actors including Indigenous peoples and local communities, government agencies, as well as sectoral actors, private organizations, and individuals.



3 The consistency of GIAHS and protected areas

3.3 An inclusive conservation approach

- Multistakeholder participation and community co-management in protected area governance
 - Respecting the rights of Indigenous peoples and local communities, actively involving them in the governance and management of protected areas, ensuring their knowledge, skills, and institutions contribute to conservation while they also benefit fairly.
 - OECMs have more flexible governance models, including bottom-up approaches, diverse governance structures, voluntary and spontaneous conservation actors, and context-specific conservation measures. Their conservation effectiveness needs to be monitored and reported, with adaptive monitoring involving the community.



4 Aligning GIAHS with China's protected areas

4.1 A model for synergising conservation and utilization of resources within and around protected areas

- Respect and maintain reasonable traditional production techniques
- Draw on and rely on effective traditional resource management methods
- Incorporate Indigenous peoples into monitoring and management, utilizing traditional culture to protect ecosystems
- Form a GIAHS spatially coordinated landscape-scale conservation network



4 Aligning GIAHS with China's protected areas

4.2 Enrich the conservation objectives and methods of national park functional zoning

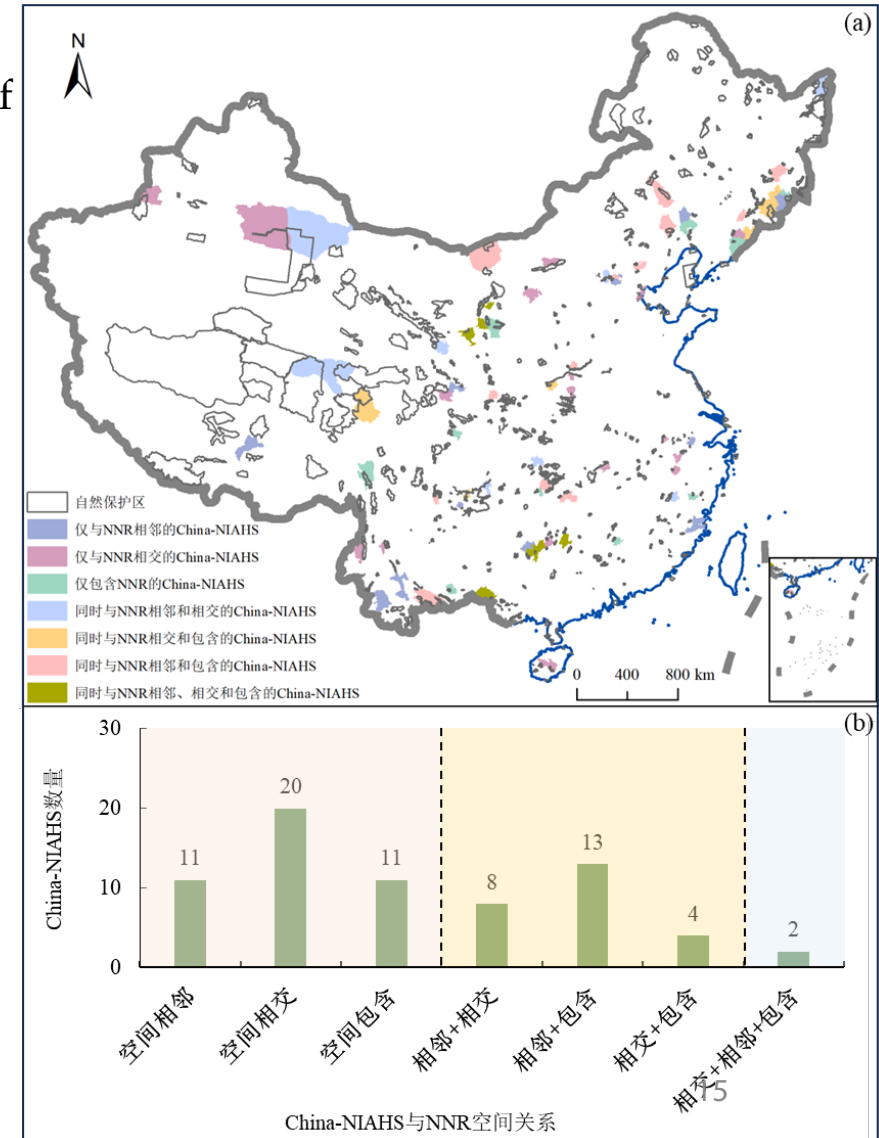
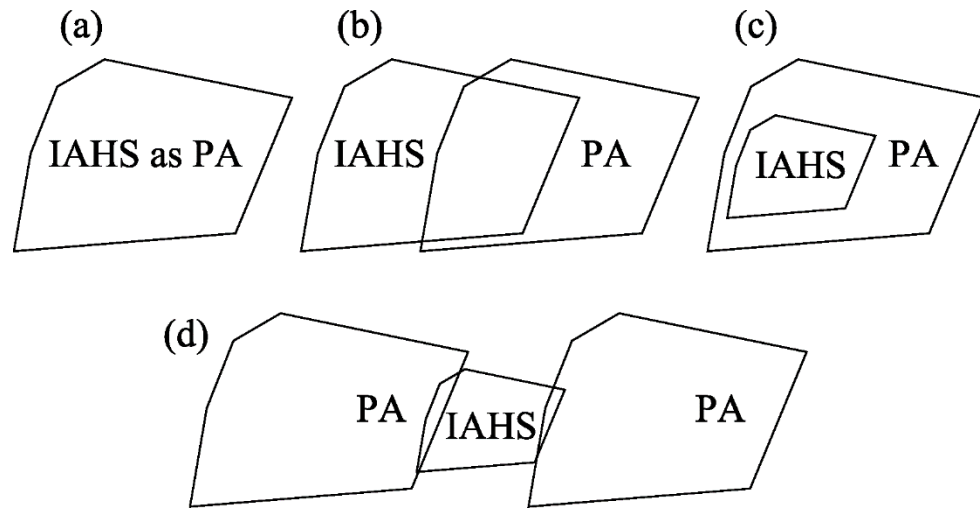
- Implement holistic protection of traditional use areas within general control zones
- Protect agricultural landscapes, managing traditional settlements and agricultural production systems according to national park standards
- Conserve agricultural culture, with national park management departments assisting in the survey of tangible and intangible cultural heritage resources
- Protect germplasm resources and compatible production methods, establishing mechanisms for preventing and compensating human-wildlife conflicts
- Develop a value-added system for national park branding based on agricultural biodiversity
- Promote eco-friendly industries such as ecotourism, agritourism, and rural handicrafts
- Strengthen collaborative management with multi-stakeholder participation



4 Aligning GIAHS with China's protected areas

4.3 Discovering GIAHS' contribution to area-based conservation

- Enrich the types of protected areas from the perspective of sustainable use of natural resources
- Integrate and optimize the spatial arrangement and management with existing protected areas





THANK YOU FOR YOUR ATTENTION!

