

ACTA GEOGRAPHICA SLOVENICA

GEOGRAFSKI
ZBORNIK



2023
63
3

ACTA GEOGRAPHICA SLOVENICA

GEOGRAFSKI ZBORNIK

63-3 • 2023

Contents

SPECIAL ISSUE – *The role of traditional, transforming and new commons in landscapes*

POSEBNA IZDAJA – *Vloga tradicionalnega, preobraženega in novega skupnega v pokrajinah*

- Mimi URBANC, Keiko HORI, Mateja ŠMID HRIBAR
Commons, collective actions and landscapes: A short introduction 9
- Hans RENES, Alexandra KRUSE, Kerstin POTTHOFF
Transhumance, commons, and new opportunities: A European perspective 15
- Nevenka BOGATAJ, Janez KRČ
Towards the efficient response of forest owners to large-scale forest damage: An example of forest commons 33
- Joana NOGUEIRA, José Pedro ARAÚJO, Joaquim Mamede ALONSO, Sara SIMÕES
Common lands, landscape management and rural development: A case study in a mountain village in northwest Portugal 51
- Tanja ŠUMRADA, Emil ERJAVEC
Will farmers cooperate to conserve biodiversity? The use of collective bonus in the High Nature Value farmland in Slovenia 69
- Primož PIPAN, Mateja ŠMID HRIBAR, Mimi URBANC
Motivation, robustness and benefits of water commons: Insights from small drinking water supply systems 85
- Mateja ŠMID HRIBAR, Mimi URBANC, Matija ZORN
Commons and their contribution to sustaining Slovenian cultural landscapes 101
- Lucia PALŠOVÁ, Zina MACHNIČOVÁ
Common lands as a system of joint management to contribute to community resilience? Case from Slovakia 119

ISSN 1581-6613



9 771581 661010

ACTA GEOGRAPHICA SLOVENICA

63-3
2023

ISSN: 1581-6613

UDC: 91

2023, ZRC SAZU, Geografski inštitut Antona Melika

International editorial board/mednarodni uredniški odbor: Zoltán Bátor (Hungary), David Bole (Slovenia), Marco Bontje (the Netherlands), Mateja Breg Valjavec (Slovenia), Michael Bründl (Switzerland), Rok Ciglič (Slovenia), Špela Čonč (Slovenia), Lóránt Dénes Dávid (Hungary), Mateja Ferk (Slovenia), Matej Gabrovec (Slovenia), Matjaž Geršič (Slovenia), Maruša Goluža (Slovenia), Mauro Hrvatin (Slovenia), Ioan Ianos (Romania), Peter Jordan (Austria), Drago Kladnik (Slovenia), Blaž Komac (Slovenia), Jani Kozina (Slovenia), Matej Lipar (Slovenia), Dénes Lóczy (Hungary), Simon McCarthy (United Kingdom), Slobodan B. Marković (Serbia), Janez Nared (Slovenia), Cecilia Pasquini (Italy), Drago Perko (Slovenia), Florentina Popescu (Romania), Garri Raagmaa (Estonia), Ivan Radevski (North Macedonia), Marjan Ravbar (Slovenia), Aleš Smrekar (Slovenia), Vanya Stamenova (Bulgaria), Annett Steinführer (Germany), Mateja Šmid Hribar (Slovenia), Jure Tičar (Slovenia), Jernej Tiran (Slovenia), Radislav Tošić (Bosnia and Herzegovina), Mimi Urbanc (Slovenia), Matija Zorn (Slovenia), Zbigniew Zwolinski (Poland)

Editors-in-Chief/glavna urednika: Rok Ciglič, Blaž Komac (ZRC SAZU, Slovenia)

Executive editor/odgovorni urednik: Drago Perko (ZRC SAZU, Slovenia)

Chief editors/področni urednik (ZRC SAZU, Slovenia):

- *physical geography/fizična geografija:* Mateja Ferk, Matej Lipar, Matija Zorn
- *human geography/humana geografija:* Jani Kozina, Mateja Šmid Hribar, Mimi Urbanc
- *regional geography/regionalna geografija:* Matej Gabrovec, Matjaž Geršič, Mauro Hrvatin
- *regional planning/regionalno planiranje:* David Bole, Janez Nared, Maruša Goluža
- *environmental protection/varstvo okolja:* Mateja Breg Valjavec, Jernej Tiran, Aleš Smrekar

Editorial assistants/uredniška pomočnika: Špela Čonč, Jernej Tiran (ZRC SAZU, Slovenia)

Journal editorial system manager/upravnik uredniškega sistema revije: Jure Tičar (ZRC SAZU, Slovenia)

Issued by/izdajatelj: Geografski inštitut Antona Melika ZRC SAZU

Published by/založnik: Založba ZRC

Co-published by/sozaložnik: Slovenska akademija znanosti in umetnosti

Address/naslov: Geografski inštitut Antona Melika ZRC SAZU, Gosposka ulica 13, p. p. 306, SI – 1000 Ljubljana, Slovenija;
ags@zrc-sazu.si

The articles are available on-line/prispevki so dostopni na medmrežju: <http://ags.zrc-sazu.si> (ISSN: 1581–8314)

This work is licensed under the/delo je dostopno pod pogoji: Creative Commons CC BY-NC-ND 4.0

Ordering/naročanje: Založba ZRC, Novi trg 2, p. p. 306, SI – 1001 Ljubljana, Slovenija; zalozba@zrc-sazu.si

Annual subscription/letna naročnina: 20 € for individuals/za posameznika, 28 € for institutions/za ustanove
Single issue/cena posamezne številke: 12,50 € for individuals/za posameznika, 16 € for institutions/za ustanove

Cartography/kartografija: Geografski inštitut Antona Melika ZRC SAZU

Translations/prevodi: DEKS, d. o. o.

DTP/prelom: SYNCOMP, d. o. o.

Printed by/tiskarna: Present, d. o. o.

Print run/naklada: 300 copies/izvodov

The journal is subsidized by the Slovenian Research Agency and is issued in the framework of the Geography of Slovenia core research programme (P6-0101)/Revija izhaja s podporo Javne agencije za raziskovalno dejavnost Republike Slovenije in nastaja v okviru raziskovalnega programa Geografija Slovenije (P6-0101).

The journal is indexed also in/revija je vključena tudi v: Clarivate Web of Science (SCIE – Science Citation Index Expanded); JCR – Journal Citation Report/Science Edition), Scopus, ERIH PLUS, GEOBASE Journals, Current geographical publications, EBSCOhost, Georef, FRANCIS, SJR (SCImago Journal & Country Rank), OCLC WorldCat, Google Scholar, CrossRef, and DOAJ.

Design by/Oblikovanje: Matjaž Vipotnik

Front cover photography: Common lands, like the pastures around Čadrg, reflect socio-economic change in the landscape. Their conservation and successful management are crucial for preserving local culture and biodiversity and supporting sustainable development (photograph: Jure Tičar).

Fotografija na naslovnici: Skupna zemljišča, kot so pašniki v okolici Čadrga, so odsev družbeno-gospodarskih sprememb v pokrajini. Njihovo vzdrževanje in uspešno upravljanje sta nujni za ohranjanje lokalne kulture ter biotske raznovrstnosti in zagotavljanje trajnostnega razvoja (fotografija: Jure Tičar).

COMMONS AND THEIR CONTRIBUTION TO SUSTAINING SLOVENIAN CULTURAL LANDSCAPES

Mateja Šmid Hribar, Mimi Urbanc, Matija Zorn



MATEJA ŠMID HRIBAR

Grazing communities are key in contributing to sustaining mountain pastures.

DOI: <https://doi.org/10.3986/AGS.11591>

UDC: 911.53:332.38(497.4)

Creative Commons CC BY-NC-ND 4.0

Mateja Šmid Hribar¹, Mimi Urbanc¹, Matija Zorn¹

Commons and their contribution to sustaining Slovenian cultural landscapes

ABSTRACT: The main challenge of cultural landscapes is how to manage them, and the concept of commons through collective actions can help in this regard. Based on a questionnaire, 21 collective actions related to cultural landscapes in Slovenia were examined using descriptive statistics. Results show that 1) traditional and transforming commons deal with forests and pastures, whereas new ones are more diverse regarding land use but in significantly smaller areas; 2) new commons indicate possible future mechanism, but they do not (yet) have an impact on cultural landscapes; 3) the main benefits of commons refer to social aspects followed by non-material and regulative benefits; material benefits are ranked last; and 4) new collective actions, especially in urban areas, have difficulties obtaining lands which threatens their existence.

KEY WORDS: commons, new commons, transforming commons, collective actions, nature's contribution to people, cultural landscape, Slovenia

Prispevek skupnega k vzdrževanju slovenskih kulturnih pokrajin

POVZETEK: Glavni izziv kulturnih pokrajin je, kako z njimi upravljati. Pri tem je lahko v pomoč koncept skupnega, ki prek skupnostnih praks upravlja s skupnimi zemljišči. Na podlagi vprašalnika smo z opisno statistiko preučili 21 skupnostnih praks, povezanih s kulturnimi pokrajinami v Sloveniji. Rezultati kažejo, da 1) se tradicionalno in preoblikovano skupno veže na gozdove in pašnike, medtem ko je novo skupno bolj raznoliko glede rabe tal, vendar na bistveno manjših območjih; 2) novo skupno nakazuje možne prihodnje mehanizme, vendar (še) ne vpliva na kulturne pokrajine; 3) glavne koristi skupnega se nanašajo na socialne vidike, sledijo jim nematerialne in uravnalne koristi; materialne koristi so na zadnjem mestu; in 4) nove skupnostne prakse, zlasti v urbanih območjih, imajo težave pri pridobivanju zemljišč, kar ogroža njihov obstoj.

KLJUČNE BESEDE: skupno, skupna zemljišča, novo skupno, preoblikovano skupno, skupnostne prakse, prispevek narave ljudem, kulturna pokrajina, Slovenija

The article was submitted for publication on January 18th, 2023.

Uredništvo je prejelo prispevek 18. januarja 2023.

¹ Research Centre of the Slovenian Academy of Sciences and Arts, Anton Melik Geographical Institute, Ljubljana, Slovenia

mateja.smid@zrc-sazu.si (<https://orcid.org/0000-0001-5445-0865>), mimi.urbanc@zrc-sazu.si

(<https://orcid.org/0000-0001-8394-9892>), matija.zorn@zrc-sazu.si (<https://orcid.org/0000-0002-5788-018X>)

1 Introduction

The manifestations of the interaction between humankind and its natural environment are manifold and ubiquitous. The cultural landscape is undoubtedly one of the finest, reflecting the characteristics and limits of the natural environment (UNESCO 2019) and socio-cultural features. In the past, land cultivation was generally associated with a high degree of individual and collective responsibility embedded in the everyday practices of larger communities (Petek and Urbanc 2007; Rodela 2012). Such practices created traditional landscapes composed of multiple ecosystems and habitats known for their diversity, dynamics, multi-functionality, and resourcefulness (Šmid Hribar and Urbanc 2016). These last two characteristics of cultural landscapes are particularly relevant in the context of the goods and benefits that people receive from ecosystems, and they are identified as ecosystem services (ES) (Millennium ... 2005) or nature's contributions to people (NCP) (Diaz et al. 2018).

In recent decades, cultural landscapes have faced numerous challenges, most of which are related to a convoluted set of modern social and economic processes. The first among these include population trends in rural areas: rapid aging, depopulation, and increased rural–urban migration (Mauerhofer et al. 2018; Jarzebski et al. 2021), and the second are related to increasingly market-oriented agriculture and trade in agricultural products (Takeuchi, Ichikawa and Elmqvist 2016). In addition, urbanisation has occurred in peri-urban areas (Saito and Ichikawa 2014). The combination of these processes leads either to overgrowth or overuse of agricultural land, both of which result in biodiversity loss (Ribeiro and Šmid Hribar 2019). These sometimes contradictory development trends threaten landscapes in many ways and raise concerns about landscape impoverishment.

One possible option for addressing the challenges posed by the short-term interests of today's world that lead to landscape depletion is through the **concept of commons**. This form of governance is based on »commoners«; that is, people that share a broad set of natural and cultural resources (Anderies and Janssen 2013). Based on several examples worldwide, Ostrom (e.g., 1990; 2005) and several other researchers (e.g., Bromley 1992; McKean 2000; Kissling-Näf, Volken and Bisang 2002; Gatto and Bogataj 2015; Haller et al. 2021) have demonstrated that through collective action communities can govern common-pool resources (CPRs) without resulting in their degradation. Some collective actions of this type have consequently influenced local cultural landscapes (Hrvatini and Perko 2008). In this context, the best-known type of commons in Slovenia are probably agrarian communities (Petek and Urbanc 2007; Rodela 2012; Bogataj and Krč 2014; Premrl et al. 2015; Šmid Hribar, Bole and Urbanc 2015; Šmid Hribar et al. 2018; Bogataj and Krč 2023), which have been under severe threat in recent decades.

Among other studies that directly link commons with landscapes, we highlight a few cases from around the world. Hirahara (2020) and Shimada (2014) examined collective actions in regenerating underused seminatural grasslands and local forests and grasslands in Japan respectively. Duraiappah et al. (2014) suggested that commons could play a role in shared management of ES and biodiversity on private and public lands. Woestenburg (2018) used the concept of the »heathland farm« in the Netherlands as an approach to regenerating traditional and typical cultural landscapes of heathlands with heaths, fields, and meadows, aiming to restore the link between food production and the management of protected natural areas. Haller et al. (2021) investigated Swiss commons and highlighted the role of commoners' organisations in sustainable use of natural resources, the provision of ES, and the management of cultural landscapes. When speaking about cultural landscapes, one should not forget about urban landscapes. Poljak Istenič, Šmid Hribar and Kozina (2023) contributed insights into collective action in an urban community garden in Slovenia that goes beyond the mere production of food, but is perhaps even more important when it comes to creation of urban green areas, socialisation, and community building. Based on a comparative study between Slovenian and Japanese commons, Šmid Hribar et al. (2023) identified different types of commons (e.g., traditional, transforming, and new commons) related to the management of cultural landscapes. However, the implications of commons for cultural landscape governance and management remain understudied. It is still not fully understood how different types of commons affect landscapes and whether there is a way to sustainably maintain and manage landscapes through collective actions in the future.

Therefore, the aim of this study, in which we focus specifically on commons related to cultural landscapes, is to explore how commons can contribute to cultural landscape governance and management through collective actions.

In this study, we understand *commons* as shared resources (mainly common lands) and also as an institution or governance regime behind the collective action; that is, the use of resources (e.g. agrarian communities). These institutions are by some authors called also *commoners' organisations* (Haller et al. 2021). The term *collective actions* is referred to actions taken collectively by members of above mentioned institutions to achieve common objectives. The term *governance* has been used for processes by »... which the repertoire of rules, norms, and strategies that guide behavior within a given realm of policy interactions are formed, applied, interpreted, and reformed. ... A useful shorthand ... is that governance determines who can do what to whom, and on whose authority« (McGinnis 2011, 6). The term *management* refers to all concrete actions performed in physical landscapes. Thus, when referring to arrangement processes, we use the term *governance*, whereas when referring to concrete actions and tasks we use the term *management*.

The objectives of this study are 1) to identify commons and collective actions that help sustain cultural landscapes in Slovenia; 2) to understand which natural resources and landscape elements are associated and managed by collective actions, and whether there are any barriers to doing so, and 3) to identify benefits (i.e., NCPs) of commons and their collective actions for beneficiaries.

2 Methods

2.1 Study area: Slovenia

This study was conducted in Slovenia for several reasons. First, Slovenia has a long tradition of local self-governance, which was introduced as early as the mid-eighteenth century. From the mid-1950s until 1994, it only functioned at the local level (the sub-municipal level) (Kukovič and Brezovšek 2016). During the socialist Yugoslav period (1945–1991), it became necessary for local communities to take the initiative to meet their most urgent needs. The instrument referred to as a »self-imposed contribution« (slv. *samoprispevek*), approved in a referendum, made such implementation possible (Kukovič and Brezovšek 2016). Second, Slovenia has a strong inclination towards participation in non-governmental organisations and clubs (Urbanc, Šmid Hribar and Kumer 2020). Third, Slovenia has a rich tradition of studying commons (Petek and Urbanc 2007; Rodela 2012; Bogataj and Krč 2014; Premrl et al. 2015; Šmid Hribar, Bole and Urbanc 2015; Šmid Hribar et al. 2018) and also of examining new commons and collective actions (Šmid Hribar et al. 2023; Pipan, Šmid Hribar and Urbanc 2023).

Although commons are recognized as a phenomenon in Slovenia and have been studied extensively, there is a lack of available data regarding areas managed by communities. The existing reliable data pertains solely to land owned by agrarian communities, which represent just one form of community ownership. According to Premrl (2013), the total land area owned by agrarian communities is 77,486.47 hectares, corresponding to approximately 3.67% of Slovenia's territory.

2.2 Selection of collective actions

Similar to a study by Šmid Hribar et al. (2023), we focused on different types of collective actions and not on all possible cases. In doing so, we sought to obtain comprehensive results and broad insights into the topic. Therefore, from the list of Slovenian commons (Šmid Hribar et al. 2023) we first singled out those types of commons (sixteen in total) that had a connection to the landscape or at least to landscape elements while implementing collective actions. In addition, based on improved knowledge not taken into account in the previously mentioned study, we added five new cases: the Božca grazing community (no. 3 in Table 2; grazing community differ slightly from agrarian communities, and their collective action is on common pastures), the Goriče Water Cooperative (no. 9; a traditional water cooperative), the Krater Creative Laboratory (no. 18; an urban green space created from degraded land), the Škocjan Lagoon Nature Reserve (no. 19; an example of a collective action forming a protected area), and Mountain hiking trails (no. 21; referring to freely accessible paths across Slovenian landscapes). The final pool consists of twenty-one types of collective actions (Table 2).

Table 1: Set of variables used in the questionnaire.

Group	Variables
A. Basic information	Name; Brief description; Number of members (2022); Basic activities; Initiators of collective actions and their purpose; Achievements of the objectives; Type of environment (rural, suburban, urban); Exact location; Level (local, regional, national); Starting year
B. Natural resources	Natural resource(s) (water, forest, pastures, etc.); Size (2022) of the resource
C. Benefits	Benefits (from the list of NCPs): climate regulation, fresh water regulation, food and feed, learning and inspiration, social benefits, shared norms and values, etc.; Measures to maintain and regulate the environment; Beneficiaries (local residents, tourists, administrative bodies, etc.); Action taken to manage regulating NCP (managing forests, planting trees, planting bee forage, etc.)
D. Ownership	Owner of the resource (individual/private owner, administrative authority, company, etc.)
E. Changes	Changes of activities over recent decades and reasons for them

2.3 Data collection

We created a data-collection questionnaire with a set of variables formulated as questions of two basic types: 1) open questions (free response) and 2) closed questions (three types: yes/no questions, multiple-choices questions with predefined categories, and open-choice questions) (see Table 1).

The data were collected through telephone and online interviews with the collective action representatives in September and October 2022. Altogether, nineteen interviews were carried out. Data for two actions (no. 2 and no. 16) were acquired from study Šmid Hribar et al. (2023).

2.4 Data analysis

After data collection basic descriptive statistics was performed with the survey tool *IKA*. For further numerical analyses Microsoft Excel was used. Comparisons between two variables were analysed using cross tabulations. For quantitative analysis data in open-ended questions were categorised and converted into numerical values.

In addition, we attributed data on the type of origin of collective actions: if they were established prior to Slovenian independence in 1991, they were understood as traditional or transforming; if they were established after 1991 but based on an earlier origin, they could also be treated as traditional or transforming. The label *transforming* was assigned to those cases that evolved significantly in their functioning (such as the manner of sharing profit, investing in the local community, and similar). If practices were established after 1991 with no prior origin, they were treated as new.

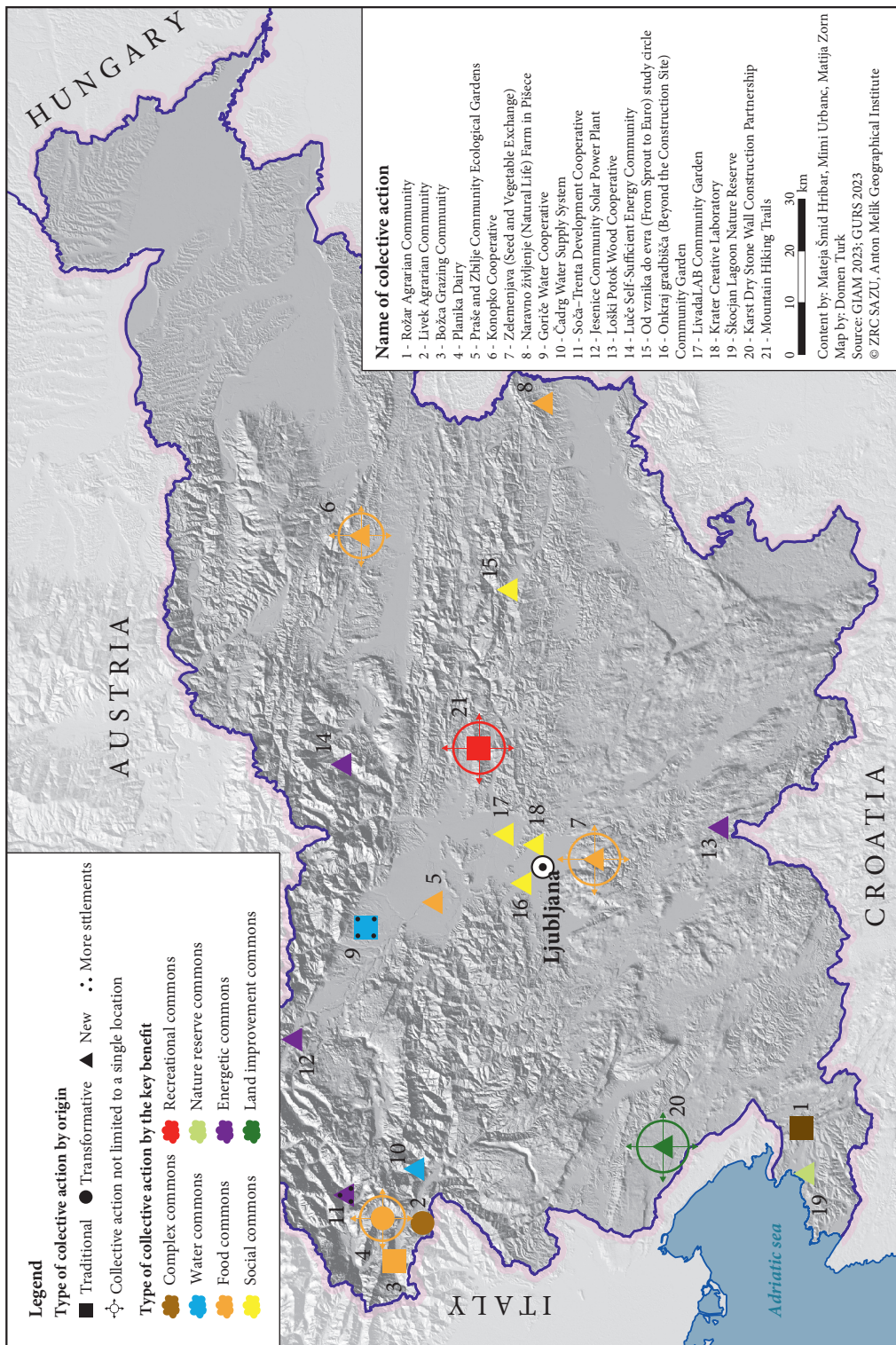
3 Results

3.1 Collective actions that help sustain cultural landscapes in Slovenia

In terms of their key benefits, landscape-related collective actions were divided into the following categories of commons:

- Food commons (grazing associations, community gardens, farms, seed and vegetable exchanges);
- Water commons (water cooperatives);
- Energy commons (energy communities and development cooperatives that supply electricity and heat);
- Recreational commons (hiking trails that provide access to and movement through the natural landscape);
- Land improvement commons (dry stone walls that improve other land);
- Nature reserve commons (a patchwork of habitats);
- Social commons (community gardens and green areas, whose primary focus is on educating and empowering individuals);
- Multi-benefit/complex commons (forests with a wide variety of benefits).

Figure 1: Landscape-related collective actions and their commons in Slovenia in terms of their key benefits and time of establishment. ► p. 106



In 2022, twenty-one types of collective actions with a direct or indirect impact on the cultural landscape were identified in Slovenia and thus selected for the analysis (Table 2, Figure 1). Of these, four are traditional (related to agrarian and grazing communities), fifteen are new (they include a wider range of activities, with food provision being predominant), and two are transforming. With the exception of four, all these collective actions were established after Slovenia's independence in 1991. Regarding collective actions we have to note that both types of agrarian communities (traditional and transforming) have originated already from before the Second World War, after which they were dissolved, to be re-established after the independence in 1991. Over half (twelve) of the collective actions were established in or after 2010, when the first one was also introduced in the urban environment. Among the new collective actions, four are in urban areas, nine are in rural areas, and two have a mixed urban–rural character (they involve the exchange of crops and seeds between members, and the production and processing of crops and products). As a rule, the traditional and transforming collective actions are present in rural areas, even though there is also one isolated case of a traditional urban collective action in Slovenia: the Kamnik Urban Citizen Cooperation (Deisinger 2012). The new collective actions arose individually; only in 2011, 2013, and 2014 two were established each year.

The motives for establishing collective actions vary, but they are mostly practical. The traditional and transforming ones largely have to do with an inherited legacy that the current community members are governing out of economic interests (e.g., agrarian communities no. 1 and no. 2 in Table 2, and grazing community no. 3) or with the organization of a collective production for selling one's own products (a dairy, no. 4). New collective actions are being established to improve urban degraded areas (no. 18), educate and encourage people to actively participate in the environment (some community gardens and green areas, such as no. 16, no. 17, and no. 18), use one's own example to show how healthy food can be produced (no. 5 and no. 8), or in some cases also how food can be produced and sold collectively (a community rural farm, no. 8, a cooperative, no. 6), preserve and protect habitats (no. 19), supply energy and heat (energy cooperatives, no. 11, no. 12, no. 13, and no.14), provide safe drinking water (water cooperatives, no. 9 and no. 10), promote rural development (certain energy cooperatives, no. 11 and no. 13), or to restore landscape elements, strengthen awareness of the importance of dry stone wall construction, and transfer knowledge (dry stone walls, no. 20).

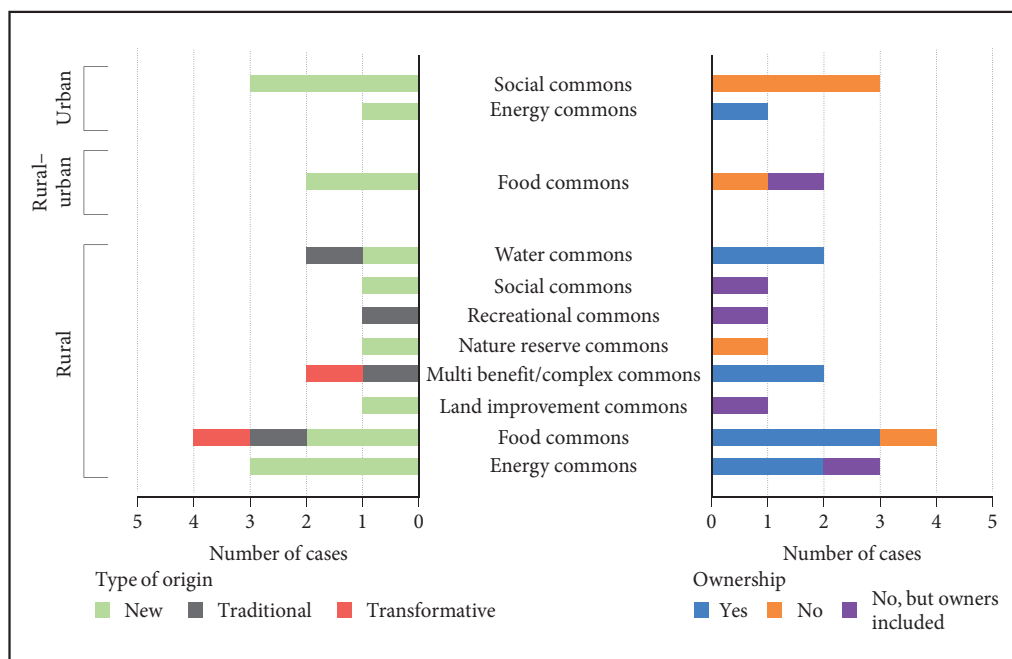


Figure 2: The main categories of commons by type of origin, ownership, and type of environment.

Table 2: Selected collective actions related to Slovenian cultural landscapes in 2022.

No.	Name of collective action	Year of establishment	Type of environment	Origin	Key benefits	No. of members	Natural resource / landscape element governed as commons
1	Rožar Agrarian Community	1994	Rural	Traditional	Multi-benefit/complex commons	70	Forest (210 ha), Meadow and pasture (to a smaller extent)
2	Livek Agrarian Community	1996	Rural	Transforming	Multi-benefit/complex commons	96	Forest (500 ha), Alpine pasture (33,3 ha), Pasture (to a smaller extent)
3	Božča Grazing Community	1984	Rural	Traditional	Food commons	7	Pasture (73 ha)
4	Planika Dairy	1975	Rural	Transforming	Food commons	209 farmers (owners)	Pasture (100 ha) ¹
5	Praše and Zbilje Community	2011	Rural	New	Food commons	100	Meadow (0.31 ha), Ecological Gardens, Garden (0.26 ha), Orchard (0.13 ha)
6	Konopko Cooperative	2013	Rural—urban	New	Food commons	About 100	Arable field ²
7	Seed and Vegetable Exchange	2014	Rural—urban	New	Food commons	20–40	Garden (indirectly) ³
8	Natural Life Farm in Pišce	2017	Rural	New	Food commons	20–30	Meadow (4 ha), Garden (0.28 ha), Orchard (1.32 ha)
9	Goriče Water Cooperative	1938	Rural	Traditional	Water commons	248	Water (150,000 m ³ of water for households and cattle per year; 250 households)
10	Čadrg Water Supply System	2011	Rural	New	Water commons	46	Water (3,650 m ³ of water per year; 24 households)
11	Soča-Trenta Development Cooperative	1992	Rural	New	Energy commons	48	Water
12	Jesenice Community Solar Power Plant	2013	Urban	New	Energy commons	55–62	Sun (1 structure; 33 housing units)
13	Loški Potok Wood Cooperative	2016	Rural	New	Energy commons	23	Forest ⁴
14	Luče Self-Sufficient Energy Community	2018	Rural	New	Energy commons	35 (metering points)	Sun (9 structures)
15	From Sprout to Euro Study Circle	2000	Rural	New	Social commons	5–12	Forest (500 ha), Meadow (2 ha), Rocks (20 ha)
16	Beyond the Construction Site Community Garden	2010	Urban	New	Social commons	80	Garden (0.1 ha)

No.	Name of collective action	Year of establishment	Type of environment	Origin	Key benefits	No. of members	Natural resource / landscape element governed as commons
17	LivadalAB Community Garden	2014	Urban	New	Social commons	15	Meadow (0.14 ha), Green area (0.18 ha), Garden (0.02 ha)
18	Krater Creative Laboratory	2020	Urban	New	Social commons	6	Green area with trees (1.6 ha), Small mushroom garden
19	Škocjan Lagoon Nature Reserve	1998	Rural	New	Nature reserve commons	10	Brackish lagoon (122.7 ha), Meadow, pasture, sea, water areas
20	Karst Dry Stone Wall Construction Partnership	2015	Rural	New	Landscape improvement commons	70	Dry stone walls (estimated at 11,725 km; density: 3.2 km/km ²) ⁵
21	Mountain Hiking Trails	1874	Rural	Traditional	Recreational commons	1,200	Hiking trails (10,000 km; density: 0.5 km/km ²) ⁶

¹ There are no data on the amount of grazing land owned by farmers from whom the dairy buys milk.

² The minimum area per member is 1 ha.

³ *Zelmezijava* directly administers only the digital platform, but it indirectly influences gardens via its members.

⁴ They do not have shared forest ownership, but each owner contributes biomass from his private forest.

⁵ Extending across meadows, pastures, and forests and surrounding arable fields, gardens, and water reservoirs in twenty-one municipalities in western and southwestern Slovenia.

⁶ Running through meadows, pastures, forests, green areas, and rocks across the entire country.

3.2 Relations between collective actions and landscape elements

The following landscape elements and natural resources are directly or indirectly managed as part of collective actions (Figure 3; the order is based on frequency): meadows, gardens, pastures, and forests (most actions), water resources, orchards, and green areas or trees (some actions, to a minor extent), and arable fields, rocks, brackish water, and the sea (in rare individual actions). The use of solar energy stands out among the new collective actions. The ranking of landscape elements per area is somewhat different (Table 2 the most right column): forests account for the largest share, followed by (alpine) pastures; other resources and landscape elements, which are usually related to new actions, cover significantly smaller areas. The most frequently represented urban landscape elements include gardens, followed by green areas and the sun; all other natural resources and landscape elements except green areas with trees are represented in rural areas. Most landscape elements are areal units (e.g., forests) of varying size, but some of them are linear (e.g., dry stone walls).

Two-thirds (i.e., fourteen) of the collective actions include special measures to maintain balance and a healthy environment. These measures do not provide any special benefits, but they affect the individual's or social wellbeing (among them, planting bee shrubs and trees predominate).

Activities have a direct and indirect impact on landscapes, and most collective actions perform both (Figure 4). Among the first, activities connected with land management and cultivation stand out, such as timber harvesting or vegetable growing. Among the indirect activities, all kinds of events, training organisation, and knowledge transfer are most pronounced. In this group, activities that provide basic services for everyday life stand out as well; for instance, keeping a local shop or post office, or supplying electricity.

Direct impacts refer to the immediate and visible changes that occur to the landscape, for instance garden cultivation. Indirect impacts may not be immediately visible, but can still have significant consequences through behaviour changes, for instance learning.

The members of rural collective actions, regardless of their type of origin, are also largely the owners of the natural resources and landscape elements that they govern (no. 1, no. 2, no. 3, no. 4, no. 8, no. 9,

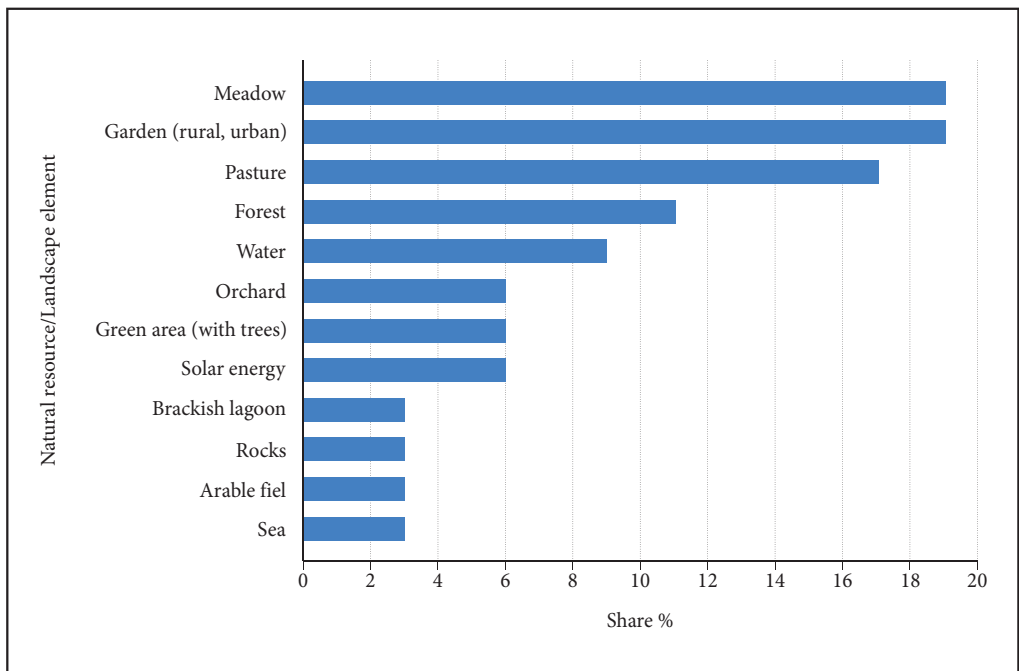


Figure 3: Share (%) of natural resources and landscape elements listed by relative frequency.



Figure 4: Cloud tags generated with a WordArt tool from keywords associated with activities performed by collective actions that have a direct (left) and indirect (right) impact on landscapes.

no. 10, no. 11, and no. 14; Figure 2). The only exceptions are the wood cooperative (no. 13, where only the cooperative is jointly owned, whereas the wood is contributed by individual forest owners), the nature reserve (no. 19), and the two community gardens (no. 5). The situation is significantly different with urban collective actions, which are all new and in which the resources are not owned but leased; the only exception is the Jesenice Community Solar Power Plant, in which homeowners are involved (no. 12).

For five collective actions, the ownership could not be unambiguously defined because only the infrastructure was collective and not also the resource (no. 6, no. 14, and no. 15), or the collective action is widely presented in Slovenia and owners are only indirectly involved in it (e.g., maintaining dry stone walls included in no. 20 and hiking trails in no. 21).

3.3 Benefits provided by commons for users and other beneficiaries

Even though collective actions and their commons are usually established based on a tangible need (see the motives under Section 3.1), the results (Figure 5) show that social benefits are by far the most prevalent, which practically all types of commons contribute to. Among these benefits, enhancing trust and reciprocity stands out the most. In terms of importance, this is followed by non-material benefits, especially learning and inspiration, and strengthening collective identity. These, too, are largely contributed to by all types of commons. Regulative benefits, which follow in terms of importance and, among which, habitat creation and maintenance, and the regulation of air quality and climate predominate, are importantly contributed to by the social commons, nature reserve commons, and multi-benefit/complex commons. The last two types manage sustainable landscape elements with minimal intervention, whereas social commons introduce the natural environment into urban space. This group of benefits is also contributed by food commons, which are the most heterogeneous type of commons from the viewpoint of natural resources (pastures, meadows, orchards, arable fields, and gardens).

Collective actions through their commons provide various benefits not only to their members, but also other beneficiaries, especially locals in general, organized groups, administrative bodies, society in general, and, to a smaller extent, tourists or visitors and, almost insignificantly, to protected area managers (Figure 5). From a spatial perspective, rural commons also provide benefits to tourists or visitors and protected area managers, whereas urban commons do not provide any benefits to these stakeholders.

No	Name of collective action	Type of origin		Geographic area		Beneficiaries/users				Nature's Contribution to People (NCP)										Social contribution																					
		Traditional	Transforming	Rural	Urban	Rural - Urban	Local residents	Organized groups (e.g. NGOs)	Government administrative bodies	Tourists/visitors	Society (general public)	Protected area manager	Habitat creation and maintenance	Pollination ...	Regulation of air quality	Regulation of climate	Regulation of freshwater quantity ...	Regulation of freshwater ... Quality	Formation, ... of soils and sediments	Regulation of hazards ...	Regulation of detrimental ...	Energy	Food and feed	Materials, companionship and labour	Medicinal, biochemical and ...	Learning and inspiration	Physical and psychological experiences	Supporting identities	Maintenance of options	Social networks	Trust and reciprocity	Shared norms and values									
Multi benefit / complex commons																																									
1	Rožar Agrarian community	x		x			x	x	x	x		x		x	x	x		x				x	x			x	x														
2	Livčak Agrarian community		x		x		x	x	x		x			x	x	x		x	x			x	x			x	x														
Food commons																																									
3	Božca Grazing community	x			x		x	x	x	x		x										x																			
4	Planika Dairy		x		x		x	x	x	x		x		x	x								x				x	x													
5	Praše and Zbilje Community Eco. Gardens			x	x		x	x		x	x		x	x	x	x		x					x	x			x	x													
6	Konopko Cooperative		x			x	x	x	x		x			x	x								x	x			x	x													
7	Seed and Vegetable Exchange		x			x	x	x		x	x		x	x	x	x							x				x	x													
8	Natural Life Farm in Pišce			x	x		x	x	x	x		x	x	x	x	x		x					x	x			x	x													
Water commons																																									
9	Goriče Water Cooperative	x			x		x	x																																	
10	Čadrg Water Supply System			x	x		x			x																															
Energy commons																																									
11	Soča-Trenta Development Cooperative		x	x			x	x	x	x		x	x	x	x	x	x	x	x	x																					
12	Jesenice Community Solar Power Plant		x		x		x	x		x																															
13	Loški Potok Wood Cooperative		x	x			x	x	x																																
14	Luče Self-Sufficient Energy Community		x	x			x	x	x	x		x																													
Social commons																																									
15	From Sprout to Euro study circle		x	x			x	x	x	x		x	x	x																											
16	Beyond the Construction Site Community Garden		x		x		x	x	x		x																														
17	LivadaLAB Community Garden		x		x		x	x	x		x																														
18	Krater Creative Laboratory		x		x		x	x	x	x		x																													
Nature reserve commons																																									
19	Škocjan Lagoon Nature Reserve			x	x		x	x	x	x		x	x	x	x	x		x																							
Land improvement commons																																									
20	Karst Dry Stone Wall Construction Partnership			x	x		x	x	x	x		x																													
Recreational commons																																									
21	Mountain hiking trails	x			x		x	x	x	x		x																													

Figure 5: Benefits contributed by collective actions and their commons. Light gray indicates the type of origin, dark gray the geographical area, orange the beneficiaries, green the regulative benefits, yellow the material benefits, light blue the non-material benefits, and blue the social benefits.

4 Discussion

The study revealed that urban areas only contain food, energy, and social commons, and that other types of commons are related to the rural areas (Figure 5). In addition, it found two types of food commons (no. 6 and no. 7) that combine urban and rural areas. Hence, this study advances current literature by identifying rural, urban, and rural–urban differentiation of commons. Furthermore, typical traditional and transforming collective actions involve the multi-benefit/complex commons, food commons, water commons, and land improvement commons, and typical new collective actions involve the energy commons, social commons, and nature reserve commons. New collective actions are more flexible and react faster to the current situation in society, which fully agrees with the findings in the literature (Tornaghi 2012). Some traditional actions have also revealed themselves in a new light. One of these is the recreational commons, which refers to hiking trails (Stritar 2020). This involves an important collective action, which, through freely accessible trails, makes it possible for the general public to traverse practically the entire country. Nevertheless, so far it has never been considered in the light of the commons.

The Krater Creative Laboratory stands out among the urban collective actions (<https://krater.si/>; no. 18). It uses a degraded or overgrown urban area (such land was also used for the Beyond the Construction Site Community Garden; no. 16) (Jurman and Lovšin 2021) to study ecological processes. This is a type of outdoor lab or test area for various experiments at the nexus of culture and ecology. The analysis of urban commons showed that most likely their key role is primarily in providing urban residents a place for establishing contact with nature, education, experimenting, and socializing. Because the new commoners usually manage urban space sustainably, at the same time they contribute to biodiversity in the urban areas, which is in agreement with Duraiappah et al. (2014) and their statement about the positive impact of co-management on biodiversity.

Ownership is another important aspect highlighted here. In principle, new commons are more heterogeneous in this regard. Especially in urban areas, managers own barely any natural resources or landscape elements. They pay insufficient attention to this or are not sufficiently heard by the city's decision-makers. During the study, in October 2022, the Beyond the Construction Site Community Garden (no. 16) had to shut down because the owner, the City of Ljubljana, decided to build public rental housing on that site. On the other hand, the purchase of forest for forest-dwelling bird species can be highlighted as a future best practice (this common is only in the making, which is why it was not included on the list). In 2022, the Slovenian Bird Watching and Bird Study Association (DOPPS) raised EUR 45,000 to purchase a forest that will be left to develop naturally, thus providing a habitat for endangered bird species (see <https://www.gozdnispecialisti.si/>). This demonstrates that the DOPPS is aware of the impact of ownership on natural resource management.

Food commons are the most important from the viewpoint of sustaining cultural landscapes, which is hardly surprising. Agriculture, which underpins food commons, is widely acknowledged as the sector with the most extensive impact on landscape development (Kristensen 2016). Food commons also considerably contribute to biodiversity, which is additionally supported by nature reserve commons, land improvement commons, and multi-benefit/complex commons. The importance of multi-benefit commons, in particular agrarian communities, for landscapes and landscape-related issues has been well established in the literature (Ledinek Lozej 2013; Šmid Hribar, Bole and Urbanc 2015; Urbanc, Ledinek Lozej and Šmid Hribar in press). The potential abandonment of common grazing in mountain pastures (no. 3) will endanger these pastures, which are already becoming heavily overgrown. It is anticipated that in the future the appearance of the rural cultural landscape could be changed the most by the energy commons; for example, if solar power plants spread from roofs in the built environment to farmland. This will become especially evident if it is accompanied by the abandonment of agriculture on the one hand and its intensification on the other. Transition from the agricultural sector to the energy sector – in particular, photovoltaic plants developed on rural land – is widely considered to contribute (at least indirectly) to various forms of environmental degradation (Delfanti et al. 2016). Paradoxically, energy commons, as long as they are small, build the local community and act as a cohesive bond. As soon as the economies of scale change, or as energy infrastructure spreads to green spaces, energy commons will have a major impact on the appearance of the rural landscape. In turn, social commons are important in the urban environment because they provide or sustain small natural areas in cities.

It was found that two types of commons (no. 20 and no. 21) have a linear shape, and they therefore play a different role in the landscape. Dry Stone Walls, a remnant of past agricultural activities, are the best example of human adaptation to the natural environment (Šmid Hribar and Urbanc 2022); they provide spatial organisation, diversity, and wind/erosion protection. Collective action no. 20 was created to preserve cultural heritage values. Mountain Hiking Trails (no. 21), the only country-wide commons, also have a long tradition but are maintained for practical reasons. Offering access to numerous hills and mountains, they have made the nationally popular leisure activity of hiking possible.

Collective actions are important not only for the management or maintenance of resources, but also for the processes involved. The cultural landscape is much more than a form; it is also, and above all, a process of dynamic interaction between people and their environment (Urbanc, Fridl and Resnik Planinc 2021). In this respect, the connection between collective actions and landscapes is most intense when it comes to activities. This study clearly supports the idea that the collective actions studied are very activity-based (Figure 4). Collective actions have an explicitly distinct dynamic aspect, much like the landscape.

Furthermore, collective actions have a wide range of impacts, both direct and indirect, and in most cases a combination of both. We cannot favour one over the other. It is likely that in the future some indirect activities will become direct, such as the impact of energy commons. As solar installations spread on agricultural land, their impacts will become direct impacts. As for impacts, multiplier effects should also be highlighted. One such example is the Planika Dairy (no. 4), which directly cultivates only its own farm, but indirectly supports the management of hundreds of hectares of farmland in less-favourable mountain areas through milk purchases. Without solid land management support from the dairy to the owners, it is anticipated that many parts of the Soča Valley Region would be subject to land abandonment and consequent natural succession.

The most diverse benefits are provided by food and social commons, and the least diverse are provided by water commons. Energy and water stand out among the material benefits, for which Figure 5 paradoxically suggests they are the least important. As expected, most of material benefits are provided by the food, water, and multi-benefit/complex commons, which are largely found in the rural areas and are more traditional. Historically, the commons arose precisely from the need for additional food resources (pastures) and energy (firewood) (Petek and Urbanc 2007), but the findings of this study demonstrate that contemporary collective actions with their commons are also established to meet other needs. This is also confirmed by Section 3.3, which examines the contribution of commons to various types of benefits. Based on Figure 5, it seems that most regulative benefits are contributed precisely by new commons. However, because traditional and transforming commons govern and manage the largest landscape elements in terms of area covered (i.e., forests and pastures), they ultimately contribute the most regulative benefits.

4.1 Policy recommendations

Due to the extremely small areas they manage, the new commons (especially the urban and urban-rural ones) do not (yet) have an impact on sustaining cultural landscapes. However, the collective actions studies indicate how, through them, communities could influence the governance of specific, more natural, landscape elements. The findings of this study could be useful for agricultural, nature-conservation, and spatial-policy decision-makers. The traditional and transforming collective actions (especially agrarian and grazing communities) are key in contributing to sustaining mountain pastures and governing forests; without them, alpine pastures are under serious threat of being overgrown, which has already been demonstrated by Urbanc, Ledinek Lozej and Šmid Hribar (in press). Therefore, agricultural decision-makers should encourage the continuation of these types of collective actions (through simplified administrative procedures, tax relief, and financial incentives). Furthermore, the mechanism established by the DOPPS may be of interest to the nature-conservation policy. It is presented in the Škocjan Lagoon Nature Reserve (no. 19), and it illustrates an alternative approach to protecting a patchwork of more natural landscape elements that serve as habitats for endangered species and are connected into reserves. The DOPPS has already applied this mechanism to three sites (in addition to the Škocjan Lagoon Nature Reserve, to the Ig Marsh Nature Reserve and the Ormož Lagoons Nature Reserve; see <https://www.ptice.si>), and it should also be expanded to other sites. Spatial and nature-conservation decision-makers should take into account the value that community gardens, orchards, meadows, and green areas provide to both the urban and rural environments;

this mechanism helps educate people, provide information about growing healthy food, understand ecological processes, and preserve biodiversity.

5 Conclusion

This study showed that three types of collective actions and their commons can be distinguished in Slovenia in terms of origin: traditional, transforming, and new commons. Traditional and transforming commons largely deal with large areas of forests and alpine pastures, whereas new ones are oriented toward more diverse land use, such as meadows, gardens, orchards, rocks, arable fields, and even brackish lagoons, but in significantly smaller areas. They indicate possible future paths or a mechanism that may be used by decision-makers in the future, but, unlike the other two types, they do not (yet) have an impact on the current cultural landscape.

General understanding was that the main motive to establish most commons was practical in nature (natural resource management and the supply of certain goods). However, the questionnaire, in which the representatives of studied commons could reflect on their actions through a series of benefits they might have not even thought about before, demonstrated that the main benefits refer to social aspects, especially trust and reciprocity between members. This was followed by non-material benefits, especially learning and inspiration, and regulative benefits, such as habitat creation and maintenance, and the regulation of air quality and climate. Material benefits, which mainly come in the form of food, water, and energy, are ranked last. This suggests that today people do not form commons to gain material benefits, which was the main motive in the past, but, first and foremost, to strengthen their social ties and realize non-material aspects, while also recognizing the importance of these types of commons for maintaining or even improving their living environment.

Last but not least, this study also revealed that new commons, especially in urban areas, have difficulties obtaining their own natural resources. This makes governance very difficult, which is why decision-makers should help out (e.g., with free or favorable long-term leases). It seems that many new urban commoners are insufficiently aware that it is only ownership or at least some kind of management right that facilitates decision-making and long-term existence. Through networking, new commons could learn from the traditional and especially the transforming ones because they have rich experiences (good and bad) in governance issues. The findings of this study should be used by agricultural, nature-conservation, and spatial decision-makers in formulating future initiatives and financial incentives for managing and sustaining cultural landscapes, nature reserves, and urban green areas, and for preserving biodiversity.

ACKNOWLEDGMENT: The authors acknowledge the financial support from the Slovenian Research and Innovation Agency core funding Geography of Slovenia (P6-0101). For the help with the interviews the authors would like to thank Tinkara Mazej.

6 References

- Anderies, J. M., Janssen, M. A. 2013: Sustaining the commons. Internet: <http://sustainingthecommons.asu.edu/wp-content/uploads/2013/07/Sustaining-the-Commons-v101.pdf> (1. 3. 2015).
- Bogataj, N., Krč, J. 2014: A forest commons revival in Slovenia. *Society and Natural Resources* 27-8. DOI: <https://doi.org/10.1080/08941920.2014.918225>
- Bogataj, N., Krč, J. 2023: Towards the efficient response of forest owners to large-scale forest damage: An example of forest commons. *Acta geographica Slovenica* 63-3. DOI: <https://doi.org/10.3986/AGS.11084>
- Bromley, D. V. 1992: *Making the Commons Work: Theory, Practice, Policy*. San Francisco.
- Deisinger, M. 2012: *Po poteh dediščine meščanske korporacije*. Kamnik.
- Delfanti, L., Colantoni, A., Recanatesi, F., Bencardino, M., Sateriano, A., Zambon, I., Salvati, L. 2016: Solar plants, environmental degradation and local socioeconomic contexts: A case study in a Mediterranean country. *Environmental Impact Assessment Review* 61. DOI: <https://doi.org/10.1016/j.eiar.2016.07.003>

- Díaz, S., Pascual, U., Stenseke, M., Martín-López, B., Watson, R. T., Molnár, Z., Hill, R., Chan, K. M. A., Baste, I. A., Brauman, K. A., Polasky, S., Church, A., Lonsdale, M., Larigauderie, A., Leadley, P. W., van Oudenhoven, A. P. E., van der Plaats, F., Schröter, M., Lavorel, S., Aumeeruddy-Thomas, Y., Bukvareva, E., Davies, K., Demissew, S., Erpul, G., Failler, P., Guerra, C. A., Hewitt, C. L., Keune, H., Lindley, S., Shirayama, Y. 2018: Assessing nature's contributions to people. *Science* 359(6373). DOI: <https://doi.org/10.1126/science.aap8826>.
- Duraiappah, A. K., Asah, S. T., Brondizio, E. S., Kosoy, N., O'Farrell, P. J., Prieur-Richard, A.-H., Subramanian, S. M., Takeuchi, K. 2014: Managing the mismatches to provide ecosystem services for human well-being: A conceptual framework for understanding the new commons. *Current Opinion in Environmental Sustainability* 7. DOI: <https://doi.org/10.1016/j.cosust.2013.11.031>
- Gatto, P., Bogataj, N. 2015: Disturbances, robustness and adaptation in forest commons: Comparative insights from two cases in the South-eastern Alps. *Forest Policy and Economics* 58. DOI: <https://doi.org/10.1016/j.forpol.2015.03.011>
- Haller, T., Bertogliati, M., Liechti, K., Stuber, M., Viallon F.-X., Wunderli, R. 2021: Transformation and diversity: Synthesis of the case studies. *Balancing the Commons in Switzerland: Institutional Transformations and Sustainable Innovations*. London. DOI: <https://doi.org/10.4324/9781003043263-13>
- Hirahara, S. 2020: Regeneration of underused natural resources by collaboration between urban and rural residents: A case study in Fujiwara district, Japan. *International Journal of the Commons* 14-1. DOI: <https://doi.org/10.5334/ijc.977>
- Hrvatin, M., Perko, D. 2008: Landscape characteristics of common land in Slovenia. *Acta geographica Slovenica* 48-1. DOI: <https://doi.org/10.3986/AGS48101>
- Jarzebski, M. P., Elmqvist, T., Gasparatos, A., Fukushi, K., Eckersten, S., Haase, D., Goodness, J., Khoshkar, S., Saito, O., Takeuchi, K., Theorell, T., Dong, N., Kasuga, F., Watanabe, R., Sioen, G. B., Yokohari, M., Pu, J. 2021: Ageing and population shrinking: Implications for sustainability in the urban century. *npj Urban Sustainability* 1. DOI: <https://doi.org/10.1038/s42949-021-00023-z>
- Jurman, U., Lovšin, P. 2021: Onkraj vrtičkov: skupnostni vrt Onkraj gradbišča. Ljubljana.
- Kissling-Näf, I., Volken, T., Bisang, K. 2002: Common property and natural resources in the Alps: The decay of management structures? *Forest Policy and Economics* 4-2. DOI: [https://doi.org/10.1016/S1389-9341\(02\)00013-8](https://doi.org/10.1016/S1389-9341(02)00013-8)
- Kristensen, S. B. P. 2016: Agriculture and landscape interaction – landowners' decision-making and drivers of land use change in rural Europe. *Land Use Policy* 57. DOI: <https://doi.org/10.1016/j.landusepol.2016.05.025>
- Kukovič, S., Brezovšek, M. 2016: The development of local government in Slovenia. *Democratisation Processes in Poland and Slovenia: comparative study*. Maribor.
- Ledinek Lozej, Š. 2013: Paša in predelava mleka v planinah Triglavskega narodnega parka: kulturna dediščina in aktualna vprašanja. *Traditiones* 42-2. DOI: <https://doi.org/10.3986/Traditio2013420203>
- Mauerhofer, V., Ichinose, T., Blackwell, B. D., Willig, M. R., Flint, C. G., Krause, M. S., Penker, M. 2018: Underuse of social-ecological systems: A research agenda for addressing challenges to biocultural diversity. *Land Use Policy* 72. DOI: <https://doi.org/10.1016/j.landusepol.2017.12.003>
- McGinnis, M. 2011: An introduction to IAD and the language of the Ostrom Workshop: A simple guide to a complex framework. *Policy Studies Journal* 39-1. DOI: <https://doi.org/10.1111/j.1541-0072.2010.00401.x>
- McKean, M. A. 2000: *Common property: What is it, what is it good for, and what makes it work? People and Forests: Communities, Institutions, and Governance*. Cambridge.
- Millennium Ecosystem Assessment – MEA, 2005: *Ecosystems and human well-being: synthesis*. Washington, DC.
- Ostrom, E. 1990: *The governing of commons: The evolution of institutions for collective action*. Cambridge. DOI: <https://doi.org/10.1017/CBO9780511807763>
- Ostrom, E. 2005: *Understanding institutional diversity*. New Jersey. DOI: <https://doi.org/10.2307/j.ctt7s7wm>
- Petek, F., Urbanc, M. 2007: Skupna zemljišča v Sloveniji. *Geografski vestnik* 79-2.
- Pipan, P., Šmid Hribar, M., Urbanc, M. 2023: Motivation, robustness and benefits of water commons: Insights from small drinking water supply systems. *Acta geographica Slovenica* 63-3. DOI: <https://doi.org/10.3986/AGS.11592>
- Poljak Istenič, S., Šmid Hribar, M., Kozina, J. 2023: Nexus of urban gardening and social sustainability in post-socialist cities. *Urban Agriculture and Regional Food Systems: Building Resilient Food Systems*. London. DOI: <https://doi.org/10.1016/B978-0-12-820286-9.00013-3>

- Premrl, T. 2013: Analiza stanja agrarnih skupnosti v Sloveniji na podlagi podatkov upravnih enot. Ekspertiza, Gozdarski inštitut Slovenije. Ljubljana. Gozdarski inštitut Slovenije. Ljubljana.
- Premrl, T., Udovč, A., Bogataj, N., Krč, J. 2015: From restitution to revival: A case of commons re-establishment and restitution in Slovenia. *Forest Policy and Economics* 59. DOI: <https://doi.org/10.1016/j.forpol.2015.05.004>
- Ribeiro, D., Šmid Hribar, M. 2019: Assessment of land-use changes and their impacts on ecosystem services in two Slovenian rural landscapes. *Acta geographica Slovenica* 59-2. DOI: <https://doi.org/10.3986/AGS.6636>
- Rodela, R. 2012: Uvod v skupno lastnino in skupno upravljanje naravnih virov. Soupravljanje naravnih virov: vaše skupnosti in sorodne oblike skupne lastnine in skupnega upravljanja. Wageningen.
- Saito, O., Ichikawa, K. 2014: Socio-ecological systems in paddy-dominated landscapes in Asian Monsoon. *Social-Ecological Restoration in Paddy-Dominated Landscapes*. Tokyo. DOI: https://doi.org/10.1007/978-4-431-55330-4_2
- Shimada, D. 2014: External impacts on traditional commons and present-day changes: A case study of Iriai forests in Yamaguni district, Kyoto, Japan. *International Journal of the Commons* 8-1. DOI: <https://doi.org/10.18352/bmgm-lchr.348>
- Stritar, A. 2020: Planinski geografski informacijski sistem – PlanGIS. Modeliranje pokrajine. GIS v Sloveniji 15. Ljubljana. DOI: https://doi.org/10.3986/9789610504696_15
- Šmid Hribar, M., Bole, D., Urbanc, M. 2015: Public and common goods in the cultural landscape. *Geografski vestnik* 87-2. DOI: <https://doi.org/10.3986/GV87203>
- Šmid Hribar, M., Hori, K., Urbanc, M., Saito, O., Zorn, M. 2023: Evolution and new potentials of landscape commons: insights from Japan and Slovenia. *Ecosystem Services* 59. DOI: <https://doi.org/10.1016/j.ecoser.2022.101499>
- Šmid Hribar, M., Kozina, J., Bole, D., Urbanc, M. 2018: Public goods, common-pool resources, and the commons: The influence of historical legacy on modern perceptions in Slovenia as a transitional society. *Urbani izziv* 29-1. DOI: <https://doi.org/10.5379/urbani-izziv-2018-29-01-004>
- Šmid Hribar, M., Urbanc, M. 2016: Thee nexus between landscape elements and traditional practices for cultural landscape management. *Biocultural Diversity in Europe*. Cham. DOI: https://doi.org/10.1007/978-3-319-26315-1_28
- Šmid Hribar, M., Urbanc, M. 2022: Enclosed landscapes in Slovenia. *Enclosed Landscapes as Part of the European Agricultural Heritage*. London.
- Takeuchi, K., Ichikawa, K., Elmqvist, T. 2016: Satoyama landscape as social-ecological system: Historical changes and future perspective. *Current Opinion in Environmental Sustainability* 19. DOI: <https://doi.org/10.1016/j.cosust.2015.11.001>
- Tornaghi, C. 2012: Public space, urban agriculture and the grassroots creation of new commons: Lessons and challenges for policy makers. *Sustainable Food Planning: Evolving Theory and Practice*. Wageningen. DOI: https://doi.org/10.3920/978-90-8686-187-3_29
- UNESCO 2019: Operational guidelines for the implementation of the World Heritage Convention. Paris.
- Urbanc, M., Fridl, J., Resnik Planinc, T. 2021: Landscapes as represented in textbooks and in students' imagination: Stability, generational gap, image retention and recognisability. *Children's Geographies* 19-4. DOI: <https://doi.org/10.1080/14733285.2020.1817333>
- Urbanc, M., Ledinek Lozej, Š., Šmid Hribar, M. in press: Mountain pastures in the Slovenian Alps: Their role in shaping and sustaining the cultural landscape. *Discourses on Mountains of Montenegro and Slovenia*. Cham.
- Urbanc, M., Šmid Hribar, M., Kumer, P. 2020: Culture in Slovenia. *The Geography of Slovenia: Small But Diverse*. Cham. DOI: https://doi.org/10.1007/978-3-030-14066-3_13
- Woestenburg, M. 2018: Heathland farm as a new commons? *Landscape Research* 43-8. DOI: <https://doi.org/10.1080/01426397.2018.1503236>