

# 1 **Disturbances, robustness and adaptation in forest commons: comparative insights from** 2 **two cases in the Southeastern Alps**

## 3 4 **1. Introduction**

5 Over time, rural communities and their resources have been exposed to external agents and  
6 pressures of varying nature and scale (Berkes and Davidson-Hunt, 2007). The State has been among  
7 the most important external influences, both through placing direct demands on communities and  
8 indirectly by empowering or weakening the communal resource management institutions,  
9 (Armitage, 2008; Bravo and De Moor, 2008; Landolt and Haller, 2011). A combination of State and  
10 other forces has often threatened the survival of communities, their resources and connected  
11 institutions, leading to failure and disappearance (Brandl, 2011). In other cases, the continuous  
12 interplay of different actors and forces has allowed communities to develop mechanisms to cope  
13 with, and slowly adjust to, external events, resulting in their survival in spite of external pressures  
14 and shocks (Janssen and Anderies, 2007). One key challenge emerging from the contemporary  
15 debate on adaptation is thus to understand what contributes to the persistence of communal  
16 institutions for resource management, and how they are transformed by adaptation.

17 Much of the investigation on this subject relies on forest cases, where several examples of long-  
18 lasting common-pool resource regimes, communities, and communal institutions have been  
19 identified as successful governance models (Agrawal, 2007; Ostrom and Janssen, 2004). There is a  
20 tradition of forest communities and community forestry throughout Europe (Jeanrenaud, 2001;  
21 Bravo and De Moor, 2008; Lawrence *et al.*, 2009; Holmgren *et al.*, 2010; Rubio-Perez and  
22 Fernández, 2013). In particular, the Alps are the setting for many ancient, traditional and recently-  
23 re-established forest commons (Netting, 1976; Kissling-Näf *et al.*, 2002). They have been exposed  
24 to centuries of complex history and many political and economic changes, sometimes leading to  
25 destitution or poor functionality. Yet, several forest communities survived (van Gils *et al.*, 2014), so  
26 Alpine areas are a good laboratory for studying community forests and forest commons in order to

27 understand the effects of external disturbances, the factors explaining survival and the adaptive  
28 responses. However, the literature on this subject is not geographically homogeneous: despite  
29 similar experiences, peripheral areas such as the eastern Alps are underrepresented in comparison  
30 with the central Alps (Switzerland, Austria, or South Tyrol). The discourse on robustness and  
31 adaptation of the commons could therefore benefit by learning from new examples. In addition, a  
32 comparative analysis of cross State-border cases offers additional insights into the specific role  
33 played by the State as an element of disturbance.

34 The aim of this paper is hence threefold. The first aim is to draw more attention to the forest  
35 commons of the southeastern Alps and more specifically in Slovenia and the Veneto Region of  
36 Italy<sup>1</sup>. In the last century, forest commons in Italy and Slovenia were exposed to very different state  
37 ideological, legal and policy regimes and, since then, their development patterns have started to  
38 diverge rather radically. Thus, the second aim is to do a comparative study on the role of the State  
39 as a driver for change in forest commons. The third and principal aim is to gain insights into the  
40 robustness of forest commons and related adaptation patterns in the southeastern Alps, by testing  
41 case material from eight forest commons on both sides of the border against the Ostrom design  
42 principles.

43

## 44 **2. Conceptual aspects**

45 The role of communities and their institutions in natural resource management has been explored at  
46 varying scales and by different bodies of scholarship (Armitage, 2008) that include commons  
47 theory (Ostrom, 1990; Agrawal, 2007) and resilience theory (Berkes *et al.*, 2003). We rely on  
48 commons theory to provide the conceptual foundation for our study, starting from the definition of  
49 our unit of analysis - forest commons (hereafter FCs). While the concept of FCs is used in the

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<sup>1</sup> There are other interesting areas for an expanded study of forest commons in central-eastern Italian Alps, e.g. Trentino Alto Adige and Friuli Venezia Giulia. The Veneto was primarily selected because one of the authors' direct experience in this region provided in-depth data not published or analysed elsewhere. Another and more important reason is linked to methodological and contextual aspects: in Italy, the political and legal context for forestry (and forest commons) is defined at a regional level. Trentino Alto Adige and Friuli Venezia Giulia thus have different political-legal contexts for forest commons, which would the comparison of the two nation-states.

50 literature (e.g., Lidestav et al., 2010), detailed definitions are generally lacking. In this paper, we  
51 connect the definition of FCs with that of socio-ecological systems (SES). According to Janssen and  
52 Anderies, (2007), an SES is ‘a structure composed of a common-pool resource, its users, and an  
53 associated governance system’ and is the pivotal unit for studying environmental and institutional  
54 change and related adaptation processes. Our FCs could be considered a specific type of SES,  
55 where the common-pool resource is forestland (also often including pastures), the users are a  
56 community having rights to the forests (often full ownership, at times only some use rights), and the  
57 associated governance system is represented by the legal-institutional context together with the  
58 internal FC rules for managing the community and the resource. Our concept of FCs pays special  
59 attention to the attributes of ‘community’. This is conventionally taken as both a geographical and  
60 social unit, ‘... a group of people with common characteristics, needs and goals’ (SSKJ, 2000). Here  
61 the focus is on a traditional community whose characteristics have evolved over centuries of living  
62 and working in the local area, where overcoming obstacles leads to establishment of internal norms,  
63 division of roles, and last but not least, forming of emotional ties (DiGiano and Racelis, 2012).

64 The robustness of an SES is described as the capability of ‘maintaining performance when  
65 subjected to external or internal unpredictable perturbations’ (Janssen and Anderies, 2007).  
66 Robustness can be considered a measure of success insofar as it allows SES to persist despite  
67 stressful events. According to Fleishman *et al.* (2010), robustness is the result of a cyclic adaptation  
68 process, of ‘modest short-term cycles of failure and recovery’. In the literature, the concept of  
69 robustness is paralleled with that of resilience, which is more widely used in ecological analysis.  
70 However, robustness puts more emphasis on the reasons for and role of human constructs: humans  
71 create rules to enhance the performance of SES (commoners, for example, craft rules for regulating  
72 the resource use and distribution of its benefits) and, by continuously adjusting these rules, they  
73 control the response to disturbances. Another strength of the reference to robustness is the attention  
74 to trade-offs: achieving greater robustness in one respect may require losing it on another (if

75 commoners, for example, perceive a danger of a community becoming too small, they might decide  
76 to admit new members, even if this means giving up community's internal cohesion).

77 Robustness is exercised in response to perturbations. Two types of perturbation, or disturbance,  
78 have been identified (Anderies *et al.*, 2004): 1) external disturbances, which include biophysical  
79 and socio-economic changes (in markets, demography or political actions); and 2) internal  
80 disturbances, which refer to internal reorganisation resulting from changes elsewhere in the system.

81 Change can be abrupt and discrete (Dawson *et al.*, 2010), e.g. earthquake, landslide, change dictated  
82 by State actions such as regime change or war. Longer term challenges are posed by slow, regular,  
83 frequent or continuous change, such as climatic, demographic, or economic trends.

84 Robust communities – social settings tending to remain balanced – react to disturbances by  
85 continuously adjusting their institutional mechanisms (Berkes and Davidson-Hunt, 2007). Those  
86 that are not robust become dysfunctional, and may ultimately dissolve. Therefore Fleischman *et al.*  
87 (2010) warn of sampling bias when analysing robustness, as SES that have disappeared can no  
88 longer be observed. In parallel, surviving FCs are not all necessarily robust, as they may just not  
89 have been exposed to a critical type or level of disturbance. This also applies to our context and  
90 calls for an analytical focus on robustness and not simply on persistence. Ostrom (1990) identified a  
91 set of eight design principles for assessing robustness, derived from studying cases of long-enduring  
92 institutions. With further refinements and framing within the SES concept, these principles now  
93 form one of the main references for the assessment of robustness (Ostrom, 2009, Cox *et al.*, 2010).

94 Agrawal (2001) also contributed to this with his conceptualisation of conditions under which groups  
95 successfully adapt to changes and self-organise. He claims that adaptive mechanisms of local  
96 communities take place due both to internal and external ties, for example, with the State or the  
97 market. It has also been argued that a 'systematic analysis of the robustness of SES should also look  
98 at how communities deal with dynamics at various scales' (Anderies *et al.*, 2004) and that  
99 successful governance shows consistency between the different 'multiple layers of nested  
100 enterprises' (Ostrom, 1990). This article contributes to the literature on robust common property

101 institutions by examining case material from eight long-enduring forest commons on both sides of  
102 the border for evidence corroborating the Ostrom design principles.

103

### 104 **3. Research methodology and data sources**

105 Given the scarcity of empirical evidence and, in particular of cross-border comparative analysis, in  
106 the region of study, our work is of an exploratory nature, aimed at identifying further scope for  
107 research. For this reason, it mostly primarily uses a qualitative approach, undertaken at different  
108 scales. The analysis of the role of the State over time and the present situation of FCs are tackled at  
109 the area scale (Veneto and Slovenia). The insights into robustness and adaptation are derived from  
110 case-studies (Yin, 2003) at the local scale based on eight FCs equally distributed between Veneto  
111 and Slovenia.

112 We made use of different sources of information, both secondary and primary data. Secondary data  
113 were extracted from published literature, also in local languages, legal Acts, grey literature,  
114 including university degree theses. In Italy, a continuous body of literature exists documenting FCs,  
115 dealing with juridical or historical aspects, and providing many elements for understanding the role  
116 of the State (Grossi, 1977, 1998; De Martin, 1990; Nervi, 1999). Analyses of individual cases are  
117 also available (Moretto and Rosato, 2002; Casari and Plott, 2003; Pieraccini, 2008, amongst others),  
118 however they do not provide a systematic picture in a context of high diversity (Bassi, 2012), where  
119 each Region (taken as a political unit) has a different situation depending on history and political  
120 decisions. The situation in Slovenia is less well documented: the available literature is mostly from  
121 a historical perspective (Volčič, 1895; Rutar, 1896) or on juridical particularities (Britovšek, 1964;  
122 Vilfan, 1980). Recent studies place attention on expected legislative amendments (Hafner, 2011,  
123 2011a), while recent case-studies (Ogrin, 1989, Premrl, 2008, Šprajcar, 2012 and others)  
124 complement grey literature. However, the overall situation has only been addressed from  
125 geographical (Petek and Urbanc, 2007) and forestry (Ravtar, 1938, Bogataj, 1990; Bogataj and Krč,  
126 2014) viewpoints.

127 Primary data were collected from different sources to complement the literature. In order to provide  
128 an updated picture of FCs in Veneto, unpublished results from a field survey undertaken for a  
129 master degree thesis (Battaglia, 2011) were used. In addition to other ownership types, the survey  
130 targeted two types of community forest owners in Veneto: municipalities and Regole, the latter  
131 being a specific type of collective forest ownership (Merlo *et al.*, 1989). Basic information, such as  
132 the size and management of property, community of reference, and existing rights were collected  
133 through face-to-face interviews. The survey covered 138 units, of which 84 were municipal forests  
134 and 54 collective properties. Twenty-seven municipal forests lack community forest rights, and as  
135 such were found not to comply with our definition of FCs (forestland, a community having rights  
136 on it, and the associated governance system). Thus, the data reported for a contemporary portrait of  
137 Italian FCs are based on 111 units. The Slovenian list of FCs since post-independence contains  
138 upwards of 600 units, depending on source and period: 660 (Petek and Urbanc, 2007 from Dodič  
139 1993 personal archive), 665 officially registered in 2007 (*ibid.*) and 638 cited in MKO (2013).

140 For case-study analysis we relied on the analysis of documents and some additional empirical data.  
141 For Veneto, crucial information for understanding compliance of FCs with Ostrom's principles is  
142 found in their charters and forest by-laws. Charters define the community's assets as well as the  
143 basic institutional rules that regulate the internal life of the community (Martello and Tommasella,  
144 2010). By-laws are more specific as to the definition of forest use. In Slovenia this source of  
145 information could not be used, as many archives from the southeastern Alpine area were burnt or  
146 lost during the two World Wars (Rodela, 2012) and original charters are still being sought. Newly  
147 formed charters follow the model provided by the State for re-registration purposes in the 1990s, so  
148 they were not crafted by the community. Source material were drawn from the latest case studies  
149 done by Mlekuž (2011), Deisinger (2012), Šprajcar (2012) and Anko (2013), as well as minutes  
150 from two official meetings. The first meeting was organised by the Chamber of Agriculture in 2011  
151 (attended by 66 representatives, of whom approximately 60% are from the southeastern Alps); the  
152 other was organised by the Association of Commons in 2013 (44 representatives).

153 In both countries information was also elicited through participation in workshops or personal  
154 communications from key informants, such as present and past leaders of FCs and their  
155 associations, FC members, and representatives of forest institutions and parks.

156

#### 157 **4. Emergence and development of FCs in Veneto and Slovenia**

158 Three relevant historical periods can be identified in the life of FCs in the area: origin and  
159 emergence of FCs, disruption, and renaissance. This section aims at highlighting the role of the  
160 State in all of them, with particular emphasis on the extinction of several FCs during the last  
161 century. Our historical perspective attempts to capture adaptation based on the interactions of  
162 community members over many generations (Agrawal, 2001, 2010; Ostrom *et al.*, 2002; Young *et*  
163 *al.*, 2006).

##### 164 *Origins and emergence of FCs*

165 The origin of FCs in medieval times as an integral element of early Alpine communities' natural  
166 environment is a point of consensus among Slovenian and Italian scholars (Graberski, 1850;  
167 Britovšek, 1964; Vilfan, 1980; Zanderigo Rosolo, 1982); the earliest records date to the early 13<sup>th</sup>  
168 century (Casari and Plott, 2003). In the remote Alpine valleys, common ownership and  
169 management of natural resources (forests and pastures) was developed by the first settlers as a  
170 strategy to ensure community endurance under extreme natural conditions and with scarce  
171 resources (Zanderigo Rosolo, 1982). Over time, the communities crafted rules regulating  
172 membership (based on the household as basic unit), use of pastures, forests and village  
173 infrastructure, restricting individual uses, setting fines for violations, appointing or electing the  
174 officials in charge of administration and monitoring (Casari, 2007). External recognition was  
175 provided by a long period of relatively stable political, juridical and economic autonomy, although  
176 with local differences (Fabbiani, 1972; Mlekuž, 1992). The economic power of FCs during more  
177 than six hundred years of prosperity is attributed to strategic role of timber trade and dairy products  
178 and on negotiated political freedom (Tagliapietra, 2011), granting loyalty to different authorities

179 according to the most favourable circumstances. For most parts of Veneto, this period lasted until  
180 the fall of the Republic of Venice in 1797. In Slovenian areas under the Austro-Hungarian Empire it  
181 continued until the end of the feudal period in 1848, when FCs bought land from feudal lords and  
182 thus became formal land owners (Šimac, 1993). Slovenian FCs enjoyed legislative recognition  
183 under the Austro-Hungarian Empire, yet the State enabled and promoted their voluntary division in  
184 order to support the modernisation of agriculture (Britovšek, 1964). Communities did not respond  
185 homogeneously – some divided their land, others resisted for diverse reasons (Smrdel, 1991). Many  
186 began but never completed division due to costs, internal disagreements, and upcoming political  
187 and economic disruptions (Bogataj *et al.*, 2012).

### 188 *Disruptions*

189 The first disruption came in 1806, heralded by Napoleon's institutional reform in Veneto and  
190 Western Slovenia. Based on administrative centralisation, this forcibly transferred community  
191 ownership to municipalities, representatives of State authority. Although many influential legal  
192 scholars contend that only decision-making powers were transferred (Cerulli Irelli, 1992),  
193 municipalities were *de facto* registered as owners of the forestland, leaving communities with only  
194 some use-rights. Instead, the process of division of more productive lands continued in Eastern  
195 Slovenia (Interview 1).

196 Population decline in the area regardless of borders started in the second half of 19<sup>th</sup> century and  
197 continued for decades for diverse reasons, not analysed here. In the 20<sup>th</sup> century, FCs in the SE Alps  
198 were disrupted by assignment of Western Slovenia to Italy after World War I. In Italy, the fascist  
199 regime ensued and issued a Land Reform Act (1766/1927), further radically excluding community  
200 members from resource management decision-making in both agriculture and forestry. Forest  
201 management rights still in the control of local communities were definitively taken over by  
202 municipalities. For the territories still in Slovenia, this same period saw three political regimes  
203 following one another, ending with the kingdom of Yugoslavia, which formally acknowledged FCs  
204 (Act, 1930) but re-focused on distant Balkan regions and faced a serious economic crisis



205 (Lazarević, 1994). FCs in the southeastern Alps therefore were forced to adapt to rapid political  
206 changes, division between two States and consequent consolidation of their institutional layers. In  
207 both countries they also had to adapt to their economic marginalisation. Within a decade, the area  
208 experienced another political conflict, World War II, which ended with an ideological and welfare  
209 division in the form of a new, globally rooted, demarcation line between Italy and Slovenia: the  
210 ‘Iron Curtain’. To its east was an undemocratic regime, which declared ‘community’ and ‘equality’  
211 to be its foundational concepts. The land of Slovenian commons was nationalised (Act, 1947) and  
212 FCs were abolished for approximately sixty years (Acts 1953, 1956, 1965). It is therefore no  
213 surprise that statistics for this period are absent, literature scarce, and so we had to rely on oral  
214 sources. However, the continued informal functioning of FCs during this period is widely  
215 confirmed by those who remained<sup>2</sup>. Additional interviews<sup>3</sup> and literature sources (Drobnjak, 2002;  
216 Mlekuž, 2011) concur that this was possible under two conditions: 1) forestry or other officials  
217 recognised and respected the existence of the FCs, and 2) the social structure did not change greatly  
218 due to substantial decline of the number of members for emigration reasons.

219 This series of actions on the part of the State severely affected FCs in both Veneto and Slovenia. In  
220 some cases the result was irreversible disappearance: common lands were divided, internal  
221 institutional norms were abandoned, and their written and oral intergenerational transmittance was  
222 discontinued. Evidence available allows identification of their official number decline while  
223 eventual internal differentiation into more or less robust has yet to be analysed.

#### 224 *Renaissance of FCs*

225 In Veneto, reinstatement of FCs started soon after the war thanks to an encouraging political climate  
226 where bottom up actions from the most powerful Regole in Belluno encountered the support of an  
227 outstanding legal scholar, Giangastone Bolla, and a favourable attitude of part of the magistrature  
228 and of the government. Legislative Decree 1104/1948 reinstated the Magnifica Comunità Cadorina,  
229 others then followed with National Act 991/1952. In 1972, institutional decentralisation gave many

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<sup>2</sup> Deisinger, 2012 and interviews number 3, 3a, 3b, 5, 6

<sup>3</sup> Interviews number 1, 2, 3a, 4

230 legislative powers to regional governments, including jurisdiction of forests and regulating  
231 collective forestland ownership. In 1975, Veneto initially recognised sixteen Regole in Comelico,  
232 then it issued Act 26/1996 ‘on the reconstitution of Regole’ (modified in 2012 to allow additional  
233 reconstitutions). Slovenia began this process after independence in 1991 when denationalisation,  
234 reestablishment of Commons and restitution of their property and rights (Act 1994) began. By 2001  
235 when restitution expired, one third of the pre-WWI total had been registered (MKO, 2013, Volčič,  
236 1895). Given continued lack of attention by the state, and the fact that the shares of commoners who  
237 died, emigrated or were simply intimidated on the land of FCs commoners had been absorbed for  
238 local infrastructure or enlargement of villages. It is difficult to estimate the number of irreversibly  
239 dissolved FCs. The situation of Veneto is similar, as estimates of how many FCs disappeared  
240 completely from the map are fully not available. However on-line information from State archives  
241 (SIUSA, 2015) mention cases of Regole absorbed by the municipalities after Napoleon and never  
242 re-established. Bolla (1992) counted in 1945, 81 Regole in the sole Province of Belluno, which is a  
243 part of Veneto. Today, in Belluno, the reconstituted Regole are 53, while the remaining from his list  
244 are still functioning as Municipalities.

245

## 246 **5. A contemporary portrait**

247 Official forest statistics (Regione Veneto, 2013) report that the total forest area in Veneto today is  
248 nearly 420,000 hectares, of which 27.9% belong to municipalities, 5.5% to the region or the  
249 national state, 60.3% to private individuals, companies or the church, and 6.3% to Regole. Since our  
250 analysis included some municipal land (as it complied with the definition of FCs, especially for the  
251 presence of use rights), the situation reported in Table 1 has a higher percentage of forest area in the  
252 FCs category than just that of Regole. In Veneto, land under diverse forms of FCs is substantial in  
253 comparison with State or Regional ownership; in addition, each unit owns a considerable amount of  
254 forestland, much larger than the average size of individual private forest property – estimated at  
255 around 7 hectares in Italy (Merlo, 1998), and larger for municipalities than Regole. The size of the

256 membership also differs markedly between the two forms, corresponding to different admittance  
 257 rules (see section 6), ranging from more than 18,000 in the largest municipality to 67 members in  
 258 the smallest Regola.

259 **Table 1. Forest Commons in Veneto and Slovenia today**

<i>Indicator</i>	<i>Veneto</i>	<i>Slovenia</i>
Total number of FCs	111*	638
Total forest area under FCs (ha)	95,902	77,486
Share of forest area under FCs out of total forest area of region/country	23%	6.5%
Average size of forest area per FC (ha)	Municipalities: 1,137 Regole: 971	147
Average number of members per FC	Municipalities: 1,226 Regole: 244	33

260 \* of which 57 Municipalities and 54 Regole

261 Sources: Battaglia, 2011 for Veneto; MKO, 2013 for Slovenia.

262 The forest ownership structure in Slovenia has changed substantially since denationalisation, from  
 263 prevailing state ownership to the recent 75% private forest area, 22% of state forests and 3% under  
 264 local community ownership (SFS, 2012). Considering land of FCs private estates is inconsistent  
 265 with their official presentation under the community ownership category. However, their distinct  
 266 presentation from individual ownership also informs us that in Slovenia, after the State, FCs are  
 267 separate (and also the largest land owner/user) category in terms of average estate, which may still  
 268 rise as 9,000 hectares of their land are still in the process of de-nationalisation. Their forest area  
 269 (and consequently its share) might therefore rise and become closer to the Venetian, what would  
 270 also contribute to the equalisation with estimation based on their number and average estate, now  
 271 inclined toward smaller entities. Communities of FCs consist of a total of nearly 20,000 people  
 272 (Petek and Urbanc, 2007), among which only some registered their share. Some refused individual  
 273 registration for diverse reasons (e.g. insistence on common and not co-ownership, eventual  
 274 individual taxation and other reasons). Their internal structure, for which data is hard to obtain, is  
 275 mostly defined by male representatives of households (Bogataj, 2012; Interview 1). Past political  
 276 action resulted in more types of FCs, but there are no data to delimit dysfunctional from dissolved  
 277 FCs, just some indications (Mlekuž, 2011; Association, 2013a, Interview 1): i) functional and

278 particularly active FCs; ii) inactive ones, due to revival starting after registration opportunity  
279 expired in 2001 (Chamber, 2011; Association, 2013), to length of denationalisation period, or to  
280 fragmentation or ill-functioning; and iii) dissolved FCs.

281 The disruption caused by regimes attempting to weaken or even wipe out local community-based  
282 institutions has played a major role in the attrition of many FCs, as shown by our historical analysis.  
283 State action led to the disaffection of local communities deprived of their decision making rights  
284 (Germanò, 1994) or even of full ownership (Interviews 1, 2). Several FCs dissolved as result  
285 (SIUSA, 2015), others continue to function with much less institutional and political recognition,  
286 and some are in a liminal state, lacking the institutional capacity and/or evidence of historical title  
287 to be fully reinstated. Thus, State enforcement of common property is a crucial factor permitting or  
288 impeding FC survival. When the State withdrew its support, FCs had to find the strength to survive  
289 internally and to gain at least State tolerance.

290 Comparison of the figures in Table 1 shows that today Slovenian and Veneto FCs differ  
291 structurally, despite their common origin: the Slovenian FCs are more fragmented, higher in  
292 number but smaller in forest area and community size. Their share of the total national land is also  
293 smaller. We argue that these differences are ‘path dependent’ (Dietz *et al.*, 2002; Heinmiller, 2009).  
294 With the re-institution of the democratic States, communities in both countries started legal action  
295 to obtain restitution, but the intensity and speed of revival differs. Restitution appears to be more  
296 rapid and successful in Veneto, supported by a more favourable legal context, while Slovenia’s FCs  
297 seem to be more marginalised. While the reasons for these differences are multiple and complex,  
298 State action appears to be pivotal. A reason can be found in the availability of archives. In Veneto,  
299 the reconstituted communities were able to support their claims with all the needed cadastral and  
300 archival evidence (property references, ancient charters); in Slovenia most land titles had been lost  
301 and oral sources and proof require more time to be traced. These hypotheses, here only briefly  
302 touched upon, certainly deserve further research.

303 Regardless of the side of the border, reasons for the persistence and renaissance of FCs in the  
304 southeastern Alps and the differences among them, can also be sought through the lens of  
305 robustness. Thus, in the next section we will try to assess if FCs in Slovenia and Veneto are robust,  
306 whether robustness can explain the differences between Italy and Slovenia or inside each country,  
307 and, lastly, if their present adaptation paths are converging or diverging.

## 308 **6. Robustness and adaptation of FCs in the southeastern Alps**

309 Although persistence *per se* is not a proof of robustness, it can be surmised that FCs that survived or  
310 were revived after a long period of disturbances, display elements of robustness. To test this  
311 hypothesis, we analysed eight southeastern Alps cases in terms of their consistency with Ostrom's  
312 design principles. The cases are: in Veneto, Regole of Ampezzo (case V1), Regola of Monte Salatis  
313 (V2), Municipality of Asiago (V3), Municipality of Conco (V4), and Commons of Čezsoča (S5),  
314 Ljubinj (S6), Bohinjska Bistrica (S7), MKK – Meščanska Korporacija Kamnik (S8), for Slovenia.  
315 These case studies were chosen based on: 1) variability in history and location; 2) active forest  
316 management; 3) availability of documentation; and 4) authors' repeated contacts in the 2010-2014  
317 period. We looked at overall robustness as well as the comparative robustness of individual cases.  
318 The data are summarised in Table 2, while further detailed narratives are provided in supplementary  
319 material.

	Veneto					Slovenia			
	1	2	3	4	5	6	7	8	
Year of 'birth'	1200/1959	1606/2006	1806	1806	1830/1995	-	-	(1783) /1866	
<b><i>CLEARLY DEFINED BOUNDARIES</i></b>									
Land Y- yes (formal Act, Cadastre)	Y	Y	Y	Y	Y	Y	Y	Y	
Community membership D=Descendants of original families but modifications, R= Residents	D <sub>M</sub>	D	R	R	D <sub>M</sub>	D	D <sub>M</sub>	D <sub>M</sub> ;	
How is it acquired H – heritage, A-Acceptance, AUT <sub>x</sub> -Automatically after x years	H, A	H, A	AUT <sub>15</sub>	AUT <sub>7</sub>	H, A	-	H, A	H, A	
How it is lost Non-Non-residency, O-other	Non, O	Non, O	Non, O	Non, O	O	-	O	O	
<b><i>CONGRUENCE BETWEEN APPROPRIATION AND PROVISION RULES AND LOCAL CONDITIONS</i></b>									
FMP - Forest Management Plan, Add - Additional rules	FMP, Add	FMP, Add	FMP, Add	FMP, Add	FMP, Add	FMP, Add	FMP	FMP, Add	
<b><i>COLLECTIVE ACTIONS</i></b>									
Constitutional principle	Specific ownership type, land indivisible	Specific ownership type, land indivisible	Public ownership by definition	Public ownership by definition	Private but joint ownership	Private but joint ownership	Private but joint ownership	Private but joint ownership	
Principle for distribution of forest products (beneficiaries) M- members, LC-local community, O-others	M, LC	M, LC	LC	LC	M, LC	M, LC	M	M, LC	
Control rights of members OB– own bodies, EI-exerted indirectly	OB	OB	EI	EI	OB	OB	OB	OB, EI	
Use rights and distributional rule F-firewood, M-money, T-timber x times	F, T <sub>1</sub>	F	F, T <sub>1</sub>	F, T <sub>1</sub>	F, T <sub>2</sub>	F	-	F, M	
Distribution of monetary income S-social, cultural purposes, F- forest, A <sub>M</sub> - aid to members in need e.g. young families	S, A <sub>M</sub>	S, A <sub>M</sub>	F, S	-	F, S, A <sub>M</sub>	-	S	S, A <sub>M</sub>	
Duties of members (additional to norms) A-Administration, P-physical work, O-other	Ad	Ad	-	-	-	P	O	Ad	
Decision-making process I-internal, O-other	I	I	O	O	I	I	I	I	
Role of Women E- equal, U-unequal	U	E	E	E	E	-	-	E	

<b>MONITORING, SANCTIONS AND CONFLICT RESOLUTION MECHANISMS</b>								
Monitoring rules (Nor-Norms only, I-internal, E-external)	I	I	-	E	Nor, E	Nor	Nor, E	E
Sanctions R-low reputation, M-monetary fines, Ex-exclusion	R	-	M	-	R	E		
<b>MINIMAL RECOGNITION OF RIGHTS AND NESTED ENTERPRISES</b>								
Constitutional rule	Land cannot be sold Permanent land-use changes must be compensated by other land			Selling of land is limited by Statutes (or not) while officially it is possible				
Legal recognition of particular ownership type Y- yes, N- no	Y			N				
Nesting with different institutional level Y=yes, R-regional, NAT-national, C-civil society	Y <sub>R, NAT</sub>		Y <sub>NAT</sub>		Y <sub>C</sub>			
Main reference	Pertile, 1889; Charter (approved 1985), by-law	Zoccoletto, 2013; Charter (approved 2014), by-law	By-law (approved by the Municipality in 1995)	By-law (approved by Municipality in 2005)	Šprajcar, 2012, Mlekuž, 2011, Interviews 1, 3, 3a, 3,b, 4		Deisinger, 2012, Pravila 2012, Interviews 1, 4, 5	

320 *Ostrom design principles:*

321 *Clearly defined boundaries:* All the FCs have full knowledge of their boundaries, which are clearly  
322 stated in their constitutive documents. However, we noted that more emphasis in defining  
323 boundaries is put on the ‘community’ rather than on the land. In all cases, membership rules are  
324 detailed, strictly prescribed and monitored. In the Regole and Slovenian FCs, membership is gained  
325 through inheritance or can also be acquired under very selective conditions, namely: new (non-  
326 descendant) members are accepted only after having proved they have lived in the area for a long  
327 time and have a reputation among local people. This signals the importance given to community  
328 cohesion, based on the belief that individuals have, share and practice common values, presumably  
329 important vis à vis actual and potential external disturbances. In the two Veneto municipalities  
330 (whose origin as landowners is connected to the Napoleon’ action) the definition of membership is  
331 less stringent, which can be explained by the lesser importance of the interests at stake, dealing only  
332 with use rights as opposed to full control rights as in the Regole. Indeed, any concerns about  
333 possibly jeopardizing survival or long-term functioning linked to membership issues are a subject  
334 for internal discussion, at times including proposals for adaptation. Cases V2 and S7 can serve as  
335 examples, both of which altered membership rules in their new Charters. Due to new value placed  
336 on gender equity in case V2, a more inclusive rule was crafted with regards to admittance of  
337 women. In case S7, membership was increasing due to the general State law of inheritance, so there  
338 are now internal limits to the number of heirs.

339 *Congruence between appropriation and provision rules and local conditions:* In all cases there are  
340 specific references to planned management, demonstrating high awareness of the value of the  
341 resource and willingness to conserve it, with a strong emphasis on long-term sustainability. Even if  
342 regulated management is prescribed by law, and thus not a deliberate choice of the FCs, there are  
343 often additional and more detailed prescriptions on land use, forest management, allowable cuts and  
344 forestry operations. In case S8, identity is rooted in forestry, as a forest management ‘vision’ is also  
345 provided.



346 *Collective-choice arrangements:* All eight case studies report internal arrangements based on  
347 principles of ‘solidarity’ in response to needs of community members and ‘equity’ in terms of  
348 balance of rights with duties. Centrality of community is again a priority, e.g., in cases V1, V2 and  
349 S7, where the basic principle is that everything is held in common. When communities hold full  
350 control rights (6 cases, excluding the municipalities), they invest a lot of effort in definition and  
351 realisation of decision-making procedures, selection of authorities and distribution rights. Avoiding  
352 friction is a priority. Consensus-building is formalised through democratic assembly decision-  
353 making and elective leadership is undertaken in turn by members. Such sophisticated rules reflect  
354 the iterative nature of long-term adaptation, based on experience of past disputes and the search for  
355 solutions. Interviewees (in southeastern Alps, as elsewhere) report that disputes were - after  
356 punishment and resolution - finally celebrated with festivities in order to keep the community  
357 cohesive. The two municipality cases appear weaker in this respect. Another collective choice  
358 arrangement deals with equity of users and distribution of goods. The same signal is provided by all  
359 cases following the same logic in both Veneto and Slovenia: conservation of the resources and  
360 immaterial heritage comes first, strategic benefits for the whole community follow, then distribution  
361 is possible, primarily to community members, especially young families and only then to  
362 individuals, if at all. Profit is strictly controlled and used to cover common needs (infrastructure  
363 establishment or maintenance).

364 *Monitoring and conflict resolution rules:* Our analysis shows that, although monitoring and conflict  
365 resolution rules do exist in all cases, they do not seem to be a priority for the FCs, as they occupy  
366 little space in their documents and personal communications. One explanation is that these rules are  
367 redundant, as the FCs are embedded in a well-defined legal context, where rules are already  
368 provided. In addition, we can assume that the strict membership control already functions as a  
369 precautionary measure so that informal, unwritten moral and social codes work better in this regard:  
370 this is further supported by the findings of van Gils *et al.* (2014) for the pastoral commons of West  
371 Tyrol.

372 *Minimal recognition of rights and nested enterprises* is achieved as FCs' constitutional rules are  
373 nested within higher tiers of governance systems in both Veneto and Slovenia, where minimum  
374 recognition of rights is guaranteed by both States (and regional Government in Italy). In Veneto,  
375 Regole are considered as private group-property, a type distinct from public or private, and  
376 safeguarded as 'providing several public goods' (Act 26/1996). They are also recognised as a legal  
377 entity, thus gaining access (often even priority) to public funds for rural development. Basic  
378 constitutional provisions of their charters such as inalienability, indivisibility and conservation of  
379 primary destination for agro-silvo-pastoral activities are backed up in national and regional  
380 legislations. In Slovenia FCs are regulated according to general private ownership principles,  
381 without any distinctive ownership type, but are obliged to provide some public goods such as  
382 access.

383 Based on this initial analysis, we can conclude that all our cases fundamentally comply with  
384 Ostrom's principles of institutional robustness. On the basis of this theory and growing corpus of  
385 evidence, their persistence and stable functioning can therefore be generally explained by their  
386 robustness. Investigating differences in degrees of robustness among all FCs and between the  
387 Slovenian and Veneto cases, we found more similarities between countries than internally. For  
388 example, the two Veneto Regole and four Slovenian FCs have many aspects in common, from  
389 membership rules based on inheritance, to internal governance bodies, from democratic decision-  
390 making processes to equity and solidarity as basic principles. What also becomes apparent is that  
391 the two municipalities, despite sharing some of Ostrom's principles with the other cases, are more  
392 distant from the core concept of 'textbook' commons, lacking for example the typical internal direct  
393 decision-making tools. It may be objected that this difference is inherent in the research approach,  
394 which accepted the municipality as a form of FCs. We argue that municipalities with use-rights,  
395 even if not precisely Commons, are at least a form of community forests, functioning on a lower  
396 level but having the potential to return to their original state. Case V1, after a long debate and some  
397 juridical verdicts, initiated the restitution process in 2012 (Resolution of Municipal Council, 2012),

398 while seventeen former Municipalities have been reinstated as Regole in Veneto since 1996. How  
399 this process will affect the rural communities, municipal budgets, and the use and management of  
400 forest resources, is an interesting topic to be explored in the years to come.

401 National differences among FCs emerge distinctly only for monitoring rules, which occur more  
402 often in Veneto than in Slovenia, and for minimal recognition and nesting. The latter finding points  
403 to the conclusion that although State-driven disruptions over the last two centuries resulted in  
404 changed FC ownership structures, where they did not succeed in fully demolishing FC's internal  
405 institutional structures, the remaining cross-border similarities outweigh their differences.

406 If our analysis has contributed to understanding the present situation of FCs in the two case study  
407 areas, it does have some limitations. One is that, especially for Veneto, our conclusions are based  
408 solely on data extracted from an analysis of FCs' Charters and by-laws. However, robustness  
409 analysis should go further, considering how adjustments are made to rules. Indeed, this occurs first  
410 by changing operational, unwritten, everyday rules and, only later, by changing the constitutional  
411 rules. So the next analytical step should focus on whether and how rules are adapting. This calls for  
412 further field research to gain insights into the life of the communities and internal decision-making  
413 processes. At the same time, gaps in this research highlight the need to search for original  
414 documents in Slovenia and improve overall statistics on the disposition of FCs.

415 Today, three main disturbances again challenge the adaptive capacity of FCs in the southeastern  
416 Alps. The first is communities' internal demographic structure, with shrinking (Lorenzi, 2010) or  
417 expanding numbers of members. The second is a decrease of participation in workload or decision-  
418 making procedures. Robustness is challenged by more open and socially inclusive models,  
419 accepting higher community heterogeneity and changed balances between resources and local  
420 conditions. For example FCs in Slovenia had to accept new types of members, e.g. the State,  
421 municipalities, and enterprises, which impact their future developmental direction. Veneto's Regole  
422 had to finally take into consideration the issue of women (Ianese, 2001). The third is the loosening  
423 of rural communities' ties with their resources, which opens the path to conflicts and controversies

424 between forestry and agricultural uses and infrastructure, urban development, recreational or  
425 amenity use (Gatto *et al.*, 2012). FCs still use their strong constitutional rules to prevent undesirable  
426 land use changes and financial speculation<sup>4</sup>: in this case, robustness is gained not through change,  
427 but through sticking to the ‘old’ core rules, in the awareness of their still being fully suited to tackle  
428 modern challenges. The last challenge concerns adaptation vis à vis the State, Despite past  
429 differentiation of State regimes, adaptation patterns now show a convergent but not yet coincident  
430 trend in Veneto and Slovenia. FCs in both countries prompted virtuous circles by lobbying at  
431 different legal levels to obtain favourable legislation.

432

## 433 **7. Conclusions**

434 The primary aim of this paper was to shed more light on typical forms of community forests in  
435 Veneto and Slovenia. These cases from a corner of the Alps add to the discourse on commons and  
436 community forestry in Europe. With their proven capacity to survive, at least in some cases, FCs in  
437 Veneto and Slovenia can offer a contribution to the analysis of disturbances, robustness and  
438 adaptation and to the search for successful governance models in forestry. The limitation of our  
439 analysis due to scant and sometime not cross-consistent data steers future efforts into improving  
440 statistics at national-regional scale, engaging in new in-depth field research of individual case  
441 studies, and incorporating other significant elements such as population and market changes.

442 The comparative approach has highlighted the role of the State, undeniable and powerful in  
443 disrupting or fostering the life of the communities, to the point that internal governance structures  
444 alone are not sufficient to guarantee community survival. The variety addressed by broadening the  
445 time perspective and undertaking cross-border approaches has not only enhanced our capability to  
446 critically assess disturbances and robustness but, more importantly, has ultimately resulted in a

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<sup>4</sup> The case of Regole d’Ampezzo is well-known. This prosperous Regole fiercely opposed a plan to build a transnational highway across their land and finally obtained the designation of protected area from the regional government and their entrustment as park managers (Lorenzi and Borrini-Feyerabend, 2010).

447 chance for mutual learning. Because they still have the same original core constituents, FCs in  
448 Veneto and Slovenia can be a source of inspiration and ideas for one another.  
449 Although limited by the type of data analysed, the insights into robustness have allowed us to  
450 provide some reasons for the survival of FCs in the southeastern Alps, but also to observe the  
451 current, not always successful, adaptation efforts. Difficult and slow progress in rethinking  
452 membership rules and renegotiating the balance between equity and sustainable resource use at a  
453 local level show that the paradigmatic narrative of commons as ideal communities or an 'ideal  
454 regulatory system' (Kissling Näf, 2002) should not always be taken for granted. In addition, at a  
455 higher institutional level, it appears that the action of the State cannot simply be translated into top-  
456 down measures, but requires long-term adaptation of all nested levels. Harmonious and consistent  
457 interaction between bottom-up and top-down principles has to still to evolve, especially in Slovenia.  
458 The crucial message and lesson from FC practices in the southeastern Alps may thus lie in  
459 accepting a variety of specific local patterns of balance between nature and society, and the  
460 recognition that FC models are not ideal, but robust and adaptive.

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