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Isabelle Arpin, Arnaud Cosson

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1 **Seeking legitimacy in European biodiversity conservation policies. The case of French** 2 **national parks**

3 **Introduction**

4 Over the course of the twentieth century, nature conservation gradually became both a
5 broadly accepted and highly contentious field of public policy (Haila, 2010). This duality
6 became clear in Europe when the EU nature conservation network, Natura 2000, was
7 implemented, generating much contestation in most, if not all, European countries
8 (Alphandéry and Fortier, 2001; Rauschmayer et al., 2009; Pinton et al., 2007; Suškevičs,
9 2012; Haila, 2012). The contestation of Natura 2000 revealed that legitimacy is a serious issue
10 for European biodiversity conservation policies and suggested the need for new ways of
11 producing legitimacy to achieve the goal of reversing biodiversity loss. In particular, shifts
12 from substantive to procedural legitimacy were called for, along with other shifts fostering the
13 participation of citizens in the making of conservation policies (Rauschmayer et al., 2009;
14 Engelen et al., 2008). However, these shifts are more visible in discourse than in practice, and
15 actual conservation policies in Europe show a complex mixture of “traditional” (i.e.,
16 substantive and government driven) and “new” (i.e., procedural and multi-level governance-
17 based) ways of seeking legitimacy, with strong variations across European countries
18 depending on their history and organization (Rauschmayer et al., 2009; van der Zouwen,
19 2008).

20 Despite their fame and tangible achievements regarding the recovery of several iconic species
21 and the conservation of beautiful landscapes, NPs face serious legitimacy issues. A major
22 reform of the NP system was implemented in France in the early 2000s and was notably
23 inspired by experiences in other European countries. While the new law (Law 2006-436 of 14
24 April 2006) did not explicitly refer to European conservation policies, it clearly brought
25 France closer to other European countries by introducing more participation in park creation
26 and governance. Simultaneously, France remains a unitary state and highly centralized
27 country characterized by the verticality of its administration and a strong tradition of top-
28 down and science-based decision-making processes. French NPs are therefore a particularly
29 interesting case to investigate regarding current attempts and ways to produce legitimacy in
30 European conservation policies.

31 The article first presents how the notion of legitimacy has been defined and the sources of
32 legitimacy that have been identified in the literature. It then retraces the evolution of the ways
33 legitimacy has been brought to French NPs between 1960, when the first law on NPs was
34 passed, and 2006, when the law was reformed. Over this period, the influence of the European
35 Union (EU) greatly increased, notably through the publication of guidelines for practitioners
36 that have been widely taken up at the national scale. After having long relied solely on science
37 and law, i.e., substantive legitimacy, French NPs have increasingly come to rely on
38 procedural legitimacy. The article finally analyses the tensions between ways of producing

39 legitimacy before examining two attempts to combine them: i) the inscription in the 2006 law
40 of the notion of “ecological solidarity” and ii) the organization of “bioblitzes” in some French
41 NPs.

42 This article draws on several empirical studies we have conducted on national parks over the
43 last three decades, together or separately. The first author has studied the history of the
44 Vanoise national park (Mauz, 2003, 2005), the transformation of ways of managing nature in
45 French NPs (e.g. Mauz and Granjou, 2008) and the role of scientific councils in the
46 governance of NPs (Arpin et al., 2016). The second author has thoroughly investigated the
47 implementation of the 2006 reform in the Vanoise and Mercantour national parks (Cosson,
48 2014). Together, we have studied the shift from a species-based approach to nature
49 conservation to a more ecosystemic approach in the French NPs (Arpin and Cosson, 2018).
50 Overall, we have interviewed several dozens of persons working in French national parks,
51 which represents hundreds of hours of interviews and thousands of pages of transcripts.
52 Moreover, our long-standing participation in the scientific councils and steering boards of
53 several French national parks have given us the opportunity to closely observe how managers
54 seek to enact the legitimacy of NPs in different contexts. Thus, while this article does not rest
55 on a specific study, it is based on a long acquaintance with NPs and their managers.

56 **1. The notion of legitimacy**

57 What is a legitimate policy and what produces legitimacy have long been vexing questions for
58 public policy scholars. Legitimacy has been defined “as a value whereby something or
59 someone is recognized and accepted as right and proper” (O’Neil, 2010 [2004]: 35). It makes
60 people consent to a rule or a policy even if these harm their own interests and even if they are
61 not obliged to do so. Going beyond legality (Suškevičs, 2012), it creates “the moral grounds
62 for obedience to power, as opposed to grounds of self-interest or coercion” (Parkinson, 2003:
63 181). If they find it legitimate, citizens will abide by a conservation policy, although it might
64 thwart their projects or clash with ingrained habits, thus diminishing the need for controls and
65 sanctions (Scharpf, 2009). Meinard (2017) proposes a somewhat different definition of
66 legitimacy, considering a policy to be legitimate if its defenders are continuously ready to
67 justify it. While this definition emphasizes the active role of defenders in the making of
68 legitimacy, it loses the functional perspective of legitimacy, which is crucial to understanding
69 why institutions and governments seek it. Keeping this function in mind is all the more
70 important for conservation policies, as they often contradict other perspectives and goals and
71 thus are particularly prone to contestation. The establishment of NPs, for instance, was much
72 contested in many countries (Haila, 2012: 41), including France (Depraz and Laslaz, 2017).
73 Creating new NPs remains extremely difficult across Europe, as illustrated by the
74 abandonment of such projects in Sweden (Sandell, 2005) and, more recently, Switzerland
75 (Michel and Backhaus, 2019). The will to create new NPs in France, after a series of failed
76 attempts, was in fact a strong motivation for the 2006 reform (Cosson, 2014; Bouet, 2019).

77 **1.1. Substantive legitimacy**

78 Where does legitimacy come from? There is no unique source of legitimacy, and different
79 ways of producing it often coexist in complex and changing ways. A major distinction has

80 been made between substantive legitimacy and procedural legitimacy. Substantive legitimacy
81 stems from the values shared by most members of a community. Max Weber (2004 [1919])
82 identified three sources of substantive legitimacy: tradition (legitimacy comes from the fact
83 that things have always been this way), charisma (legitimacy comes from the authority of a
84 powerful leader), and highly institutionalized systems of laws and procedures (legitimacy
85 comes from the trust in strong institutions and their procedures and the existence of competent
86 civil servants). Max Weber termed this third type of substantive legitimacy “rational-legal”
87 legitimacy (Weber, 2004 [1919]).

88 Unlike their American counterparts, European NPs include areas that have long been
89 occupied and used. Tradition-based legitimacy might be expected to be rather weak in their
90 case, as they are “newcomers in the sphere of public policy” (Haila, 2012: 41) and do not
91 have a long history on which to build. This particularly holds true for France, where the first
92 official parks were eventually created in the 1960s, i.e., several decades later than other
93 European NPs. Moreover, conservation policies claim to break with, rather than continue, past
94 practices. They are essentially predicated on the idea that things should not be the same as
95 they used to be.

96 Charismatic legitimacy also tends to be limited in conservation policies. Even if some
97 emblematic characters initiated the park projects, their influence and charismatic legitimacy
98 remained circumscribed to the moment of the initial impulse. The creation of the parks was
99 rapidly entrusted to civil servants, mainly engineers in rural engineering, water engineering
100 and forestry (Basset, 2010). Most people could not cite the name of a single person having
101 championed nature conservation, let alone NPs.

102 The sole form of substantive legitimacy on which NPs can count, then, seems to be rational-
103 legal legitimacy. For that matter, they mostly rest on a host of institutions, rules and laws.
104 Weber insisted on the role of bureaucrats rather than experts and scientists in rational-legal
105 legitimacy. However, science has become a major source of legitimacy for public policies.
106 Conservation policies in particular generally claim a robust scientific basis. Science is one of
107 the main institutions on which they draw to acquire legitimacy. However, relying on science
108 to produce legitimate conservation policies is far from straightforward. Examining the links
109 between science and conservation movements, Yearley (1992: 514) concluded that science
110 has been “a less good ally than they (the greens) might have wished” and that conservation
111 policies cannot rely on science alone to be deemed legitimate. Studying the history of US
112 NPs, Sellars (1997) showed that science had exerted comparatively little influence on park
113 management, which was essentially driven by a tourism agenda. More recently, Heazle (2016)
114 came to an even more negative conclusion. Retracing the history of the International Whaling
115 Commission since its creation in 1946, he argues that science, albeit officially considered the
116 cornerstone of the commission’s legitimacy, could actually orient its decisions only during a
117 short period of scientific and political consensus. Drawing on Collins and Evans’ (2002) third
118 wave of expertise, Heazle and Kane (2016) argue that science and politics can neither be
119 disentangled nor confounded and emphasize the complex and moving tensions between
120 science-based legitimacy and political authority.

121 **1.2. Procedural legitimacy**

122 Unlike substantive legitimacy, procedural legitimacy stems not from largely shared values but
123 from the relationships between public policies and citizens. Three types of procedural
124 legitimacy have been identified in the context of EU policies: “input legitimacy”, which is
125 participation-oriented; “output legitimacy”, which is performance-oriented; and “throughput
126 legitimacy”, which is process-oriented (Schmidt, 2013). To put it simply, input legitimacy
127 designates citizens’ input in public policies and output legitimacy how the policies respond to
128 their needs and interests. Schmidt (2013) suggested the addition of “throughput legitimacy” to
129 account for what happens between political input and policy output and for the quality of EU
130 governance processes. She proposed using various criteria to evaluate the throughput
131 legitimacy of governance processes: effectiveness, accountability, transparency, inclusiveness
132 and openness. Inclusiveness, accountability and transparency are also proposed by Suškevičs
133 (2012) as major criteria to achieve the legitimacy of biodiversity governance.

134 Inclusiveness is related to the diversity of actors with different interests having access to and
135 influence on policy-making processes. Accountability corresponds to the idea that the persons
136 in charge of a given policy can respond to participatory input demands and be held
137 responsible for their output decisions and that the policy-making processes meet standards of
138 ethical governance. Transparency means that citizens have access to information about these
139 processes and that decisions as well as decision-making processes are public.

140 Several points can be retained from this literature overview: i) legitimacy exerts a key
141 function for conservation policies because they are particularly vulnerable to contestation; ii)
142 multiple sources of legitimacy coexist and interact in intricate and changing ways; and iii)
143 rational-legal and notably scientific legitimacy has been and remains the main source of
144 substantive legitimacy for conservation policies, yet its limits have become increasingly
145 visible, and thus, it does not suffice to legitimate conservation policies. The case of French
146 NPs will now enable us to examine how European biodiversity conservation policies may
147 achieve legitimacy in practice.

148 **2. The case of French national parks**

149 French NPs are created by the state following a long process¹ and comprise two nested areas:
150 a strictly protected area with specific conservation rules regulating works and practices and a
151 buffer area. Their management is placed under the responsibility of public institutions,
152 strongly supervised by the Ministry of Environment. They are headed by a director appointed
153 by the minister and employ mixed teams composed of office staff working at the park

¹ The current creation process unfolds as follows: the project to create a NP is supported by a so-called “prefiguration” organism that carries out the studies needed to demonstrate the park interest. The project is then submitted to the municipalities and local professional organizations concerned, whose remarks are transmitted by the minister of environment to the Prime minister, along with the park project. If the Prime minister decides to consider the project, the prefiguration organism elaborates a charter defining the park’s conservation objectives and means, as well as a map distinguishing several zones within the park, including one or several core zones and a buffer area. A public inquiry follows, enabling the stakeholders and the public to react to the park project and charter, which may evolve accordingly. The park is created by a national decree. Finally, the municipalities decide whether they want to be part of the buffer area or not. The municipalities, then, can intervene at different stages of the creation process, both before and after the state’s decision to create a NP. While they can strongly influence the project and decide not to adhere to the buffer area, they cannot scuttle the project once its realization has been decided, unlike in the Swiss case (Michel and Backhaus, 2019; Michel, 2019).

154 headquarters with sector-specific competences (nature conservation, agriculture, forest,
155 landscape, tourism, etc.), and field staff in charge of nature monitoring, education and
156 environmental police.

157

158 **2.1. The making of substantive legitimacy under the 1960 law**

159 As mentioned, rational-legal legitimacy formed the initial basis for the legitimacy of French
160 NPs. The failure to establish a first NP in the Écrins Range in 1913 was largely due to the lack
161 of a solid legal basis at that time (Zuanon, 1995), which the 1960 law eventually provided.
162 The literature and our own studies suggest that the European influence on this early period of
163 French parks was very limited. The first deputy director of Vanoise NP recalled the following
164 in an in-depth interview about park creation (1963) (Author, XXXX):

165 *“It was the first French Park, we had absolutely no ... how can I say, model; in*
166 *France, it didn't exist. So we were sent on a mission; my boss visited the United*
167 *States, Japan; me, I visited Scandinavia, Denmark, Holland, Sweden, Finland and*
168 *back through Germany, to see what the others were doing. (...) It didn't do us*
169 *much good, because it's a question of temperament, of people's mentality. In*
170 *short, there was no model. So my boss thought, "Well, we'll just do as we see fit"*
171 *[laughs].”*

172 Park legitimacy was based on a strong and lasting alliance between law and science (Cosson,
173 2014): on the one hand, scientists carried out naturalist inventories in the parks; on the other
174 hand, legislators created new mechanisms to protect nature (nature reserves, lists of protected
175 species, etc.). The basic philosophy was “knowing to protect” and “protecting to be able to
176 know” by pursuing scientific work on the natural heritage of NPs.

177 Several factors have contributed to consolidating the rational-legal legitimacy of parks until
178 the present. First, a new discipline, conservation biology, has developed as a “crisis science”
179 (Meine et al., 2006) with the dual goal of documenting the loss of biodiversity and proposing
180 measures to reverse or stop it. NPs have defined themselves as “life-size laboratories” and
181 have become involved in collaborative research programmes, e.g., within the frame of long-
182 term ecological research sites. Second, NP managers have developed close relationships with
183 scientists, mainly in the field of life sciences. As a result, NPs have developed increasingly
184 sophisticated expertise, e.g., by improving the inventory and monitoring protocols
185 implemented by their field staff. They have gradually acquired innovative tools to collect,
186 store, and analyse data, and they increasingly contribute to the knowledge of biodiversity and
187 its evolution at larger scales.

188 However, rational legal legitimacy has also encountered difficulties and limits. One of them
189 concerns the shift in the status of science, from an undisputable truth to a point of view that
190 can be discussed and balanced with other perspectives. For instance, lay knowledge must now
191 be taken into account along with scientific knowledge (Callon et al, 2001), particularly in
192 complex and uncertain fields, such as nature conservation. In addition, NPs have been
193 assigned new missions that are less based on rational legal legitimacy: while they were

194 principally asked to conserve nature, they must currently also contribute to the sustainable
195 development of the areas they are responsible for. The last and probably major limit facing
196 the national park rational legal legitimacy concerns their relations to local populations. After
197 the creation of a ninth park (Guadeloupe) in 1989, attempts to create new NPs in France failed
198 because of strong local opposition, while already existing parks experienced severe local
199 conflicts. The Calanques National park, just outside Marseille, was eventually created in 2012
200 after more than ten years of struggle (Deldreuve, 2012), thanks to the 2006 reform, which
201 provided French NPs with procedural legitimacy.

202 **2.2. The 2006 reform and the rise of procedural legitimacy**

203 A “participatory turn” based on a procedural definition of legitimacy took place in European
204 nature conservation policy in the 1990s (Engelen et al., 2008). This led to the involvement of
205 a plurality of actors beyond traditional “decision makers”, such as elected officials and state
206 representatives, in decision-making processes. This holds true for French public policies in
207 the field of nature management and conservation (Lascoumes, 2012).

208 However, as a gem and a flagship of French conservation policy, NPs remained a stronghold
209 of substantive legitimacy, leaving science and law at the basis of their existence and action.
210 The participatory turn did not reach them until the 2006 reform. Weak in the 1960s, the
211 European influence has been important for this evolution. This time, the experiences of other
212 countries were considered relevant for rethinking the organization and functioning of French
213 NPs (Bouet, 2019: 107-110). Beyond the elaboration of the reform, European guidelines for
214 practitioners explicitly encouraging the shift to participatory processes have strongly
215 influenced national guidelines that have in turn shaped park policies and practices. To give
216 but one example, the guidelines regarding the elaboration of management plans published by
217 Eurosite, the European network for natural site managers, have been widely taken up in
218 national guidelines (Arpin, 2019); they strongly advocate collaborating with local
219 stakeholders and opening decision-making processes to a broad range of actors.

220 The reform transformed the park’s initial “central zone” into a “core area” and created around
221 it an area of membership that had to meet two criteria: “ecological solidarity” with the core
222 area and voluntary adhesion of the municipalities to the project defined in a charter. This
223 brought a major change to existing NPs, as their perimeter outside the core area now depends
224 on the voluntary adhesion of the local municipalities, while it was defined by the state under
225 the 1960 law.

226 The parks succeeded in taking advantage of the 2006 reform to increase their procedural
227 legitimacy to very different extents. The first adhesion campaign led to widely contrasting
228 results, ranging from less than 10% of the municipalities confirming their will to stay in the
229 area of membership in the Vanoise NP to over 80% in the Écrins and Mercantour NPs. In
230 theory, all stakeholders could participate in the process (inclusiveness); they were informed
231 about the decision-making processes and had access to all the stages of the charter making
232 (transparency); the national park management team, as well as the municipalities that signed
233 the charter, are much more clearly responsible for achieving the goals set out in the charter

234 (accountability). However, in practice, the parks conducted the elaboration of the charter in
235 very different ways, with varied results in terms of procedural legitimacy (Cosson, 2014).

236 Three factors contributed to consolidating parks' nascent procedural legitimacy. First, new
237 understandings of nature conservation policies emerged. A shift occurred at the European
238 scale (and beyond), from a segregationist approach to nature and its conservation to an
239 integrative approach (Locke and Dearden, 2005; Rodary and al., 2003). The segregationist
240 paradigm assumes that humans are outside nature and that the main, if not unique, goal of
241 NPs should be to protect nature from humans for its intrinsic value. In turn, the integrative
242 paradigm considers that humans are part of nature. Human activities should then be integrated
243 into nature conservation, leading to a more dynamic management of biodiversity (Blandin,
244 2009). Second, the implementation of the charter enabled the parks to reinforce existing
245 collaborations and launch new partnerships: conventions of application of the charters were
246 established between the parks and the local municipalities; evaluation processes of the
247 charters involving local actors were carried out, and a social, economic and cultural council
248 was created (with varied success) in each park. Third, NPs acquired expertise in leading
249 processes of dialogue and concertation by employing new staff or training their agents, and
250 their scientific councils gradually involved more social scientists. A late arrival in French
251 NPs, the participatory paradigm has now become pervasive, as it is in European conservation
252 policies.

253 However, park procedural legitimacy also remains fragile. The input legitimacy of nature
254 conservation policies is weak because few people (environmental NGOs, scientists) stand up
255 for the conservation of natural and cultural heritage, and they have little economic and
256 political power. The output legitimacy of NPs is also fragile: the specific influence of park
257 actions on the evolution of their large areas of membership is difficult to disentangle from
258 other factors (socio-economic and demographic changes, global changes, etc.) and thus
259 challenging to precisely evaluate and demonstrate. The only procedural legitimacy on which
260 NPs can rely is therefore throughput legitimacy, which is necessarily temporary: the
261 elaboration of the charters was a symbolic moment and an opportunity to focus on
262 participatory approaches, which is difficult to maintain over time. Moreover, the integrative
263 paradigm has been increasingly challenged (Hutto et al., 2005) for two main reasons: i)
264 participatory processes can be hijacked by influential actors (Mermet et al., 2004), and ii) they
265 might threaten biodiversity conservation by diluting nature policy objectives (Locke and
266 Dearden, 2005) and by thwarting decision-making favourable to long- or medium-term issues
267 in favour of short-term political or economic reasons.

268 **3. Tensions and hybridizations between sources of legitimacy**

269 The two major sources of legitimacy for NPs (rational-legal legitimacy and throughput
270 legitimacy) have not been totally separated over time: for instance, many discrete negotiations
271 with local stakeholders about the park boundaries took place during their creation. Nor are
272 they completely impervious to one another: procedural legitimacy can be enhanced by means
273 of norms and legal framework, as illustrated by the Rio Summit in 1992, the generalization of
274 the principles of the Aarhus Convention (1998) to all European texts from 2009 onwards, and
275 the Inspire directive (2007) to promote the exchange of environmental data within the

276 European Union. Nevertheless, these two sources of legitimacy diverge on several important
277 points.

278 **3.1. Tensions between rational-legal and throughput legitimacy**

279 **3.1.1. Three main sources of tension**

280 First, nature management rests on sophisticated methods and the acquisition of a large amount
281 of data, while debating this management requires extreme simplification (Charvolin, 2012).
282 Second, the importance given to the natural heritage and its management depends on
283 diverging understandings of the relationships between humans and nature, which are anchored
284 in different value systems (Larrère and Larrère, 2015): the "preservation" of nature entails
285 defending it against anthropogenic disturbance; the "conservation" of nature seeks to maintain
286 a balance between human activities and nature through appropriate management; the
287 "exploitation" of nature consists of harnessing its resources in response to human wants,
288 without caring about future generations or non-humans. In the first two visions, nature has
289 intrinsic value. In the third category, it has a mere instrumental value. In the case of NPs, the
290 rational-legal approach puts forward the first two visions around the idea of "knowing to
291 protect". The participatory approach underpinning throughput legitimacy generally favours a
292 more instrumental approach to nature because it gives priority to the numerous current
293 stakeholders (e.g., municipalities; farmers, foresters, hunters, fishermen and their local
294 organizations; industries; developers), to the detriment of non-humans or future generations
295 whose spokespersons (scientists, naturalists and lawyers) are just some actors among many
296 others. This is particularly the case when local stakeholders have strong political and
297 economic power, as in the French Northern Alps (Arpin, 2019).

298 Third, the two sources of legitimacy have different time and space scales. For instance,
299 protected species that are rare at a wide biogeographic scale can be locally abundant and
300 therefore considered ordinary by inhabitants. Work prohibition orders due to the presence of
301 such species are a recurring reason for conflict in NPs (Cosson, 2014).

302 **3.1.2. Irreconcilable tensions?**

303 Some features of procedural legitimacy threaten substantive legitimacy. Its key factors
304 (effectiveness, inclusiveness, accountability, transparency) can indeed be associated with the
305 liberal turning point of public policies (Muller, 2008). This neoliberalization of conservation
306 policies weakens the bureaucratic functioning that embodies substantive legitimacy in several
307 ways.

308 First, procedural legitimacy leads to strengthened political control over conservation policies:
309 the 2006 reform gave more power to elected representatives than the 1960 law. However,
310 defenders of substantive legitimacy often hold local elected officials as bound to favour their
311 political short-term interest and therefore incapable of considering mid-term let alone long-
312 term issues and unable to make sound decisions concerning nature conservation.

313 Second, the development of new public management (Hood, 1994) and the model of the
314 "strategic state" (Bezes, 2005) clash with the rational-legal culture of NP agents. What used to
315 make a good agent was scientific and technical expertise and dedication to a national
316 conservation mission. The rise of procedural legitimacy pushes agents to think differently

317 about their job: their work must now be part of a local development project designed in
318 collaboration with many actors who expect concrete results (input legitimacy). It must be
319 cost-effective and measurable (output legitimacy). The rise of procedural legitimacy has
320 direct consequences on how NP agents give sense to their engagement and practices. The
321 tensions they experience are concrete signs of irreconcilable tensions between substantive
322 legitimacy and procedural legitimacy.

323 Third, the liberal turn that accompanies procedural legitimacy often implies a form of
324 “monetarization of nature”. The evaluation of nature conservation policies (and therefore their
325 legitimacy output) is increasingly based on monetary approaches that French NPs have started
326 to apply (see Hamadé and Ronan, 2011). Such approaches clash with the conception, which is
327 central in the initial regime of substantive legitimacy, that nature has intrinsic value and that a
328 specific ethic of nature is needed (Maris, 2010).

329 Substantive legitimacy and procedural legitimacy both encounter limits and difficulties, so
330 that none of them alone can provide NPs with strong legitimacy. However, they often clash
331 with one another. Combining them is therefore a delicate effort. Drawing on pragmatic
332 sociology, Michel and Backhaus (2019) showed that the promoters of the Adula NP project in
333 Switzerland resorted to various registers of justification² and that this led to a “discursive
334 blur” and, eventually, to a negative vote in some municipalities and the rejection of the
335 project. However, we also found innovative ways of combining different sources of
336 legitimacy in French NPs.

337 **3.2. Tentative hybridizations**

338 We examine here two attempts to overcome the tensions between substantive legitimacy and
339 procedural legitimacy. The first consists of adding scientific legitimacy to procedural
340 legitimacy by reframing NPs as socio-ecosystems. The second consists of adding procedural
341 legitimacy to scientific legitimacy by renewing the ways of performing naturalist inventories.

342 **3.2.1. Parks as socio-ecological systems**

343 The notion of socio-ecosystems recognizes that humans are an integral part of ecosystems and
344 their functioning and focuses on the links between social and ecological systems (Berkes et
345 al., 2003; Ostrom, 2009). Currently widespread in the academic literature, the notion is
346 increasingly applied to NPs; it allows defining these as particular yet genuine socio-
347 ecosystems (Mathevet et al., 2016; DeFries, 2017: 229; Cumming and Allen, 2017), rather
348 than as natural ecosystems to be preserved from human activities as much as possible.

349 Cumming and Allen (2017: 1715) consider that reframing NPs as socio-ecosystems will “be
350 essential if protected areas are to justify their continued existence” (see also Cumming, 2016;

² Analysing how local inhabitants justified or criticized the Adula park project in their daily interactions, Michel (2019) focuses on the notion of justice rather than that of legitimacy. It is beyond the scope of this paper to compare the two notions. Let us simply state that they overlap only partially; for instance, a project may be deemed unjust and yet legitimate. While legitimacy and justice both involve interest in procedures, discussions about justice lead to pay more attention to the recognition of e.g. cultural identities, local knowledge systems, and to the distribution of costs and benefits associated with the project.

351 Mathevet et al., 2016: 5, 13). How can this notion enhance the legitimacy of NPs? First, it is
352 accompanied by notions such as that of resilience (Holling, 1973), i.e., a system's capacity to
353 absorb and adapt to change without losing its main characteristics and functions, which
354 emphasizes the inevitability of and even need for change (Berkes et al., 2003; Cumming and
355 Allen, 2017: 1710). It therefore leads to regarding the changes brought by the interactions
356 between ecosystems and activities and these interactions themselves as normal. Several
357 activities have continued to be authorized after the creation of NPs, and others, notably
358 tourism, have even been encouraged. This situation has often been held contradictory with the
359 view of NPs as "nature sanctuaries" and, hence, problematic: the presence of direct or indirect
360 human influence in NPs could only make them appear imperfect and unaccomplished. In turn,
361 applying the notion of socio-ecosystems to NPs allows framing them as places where human
362 activities are not only tolerated for historical or political reasons but where they fully have
363 their place. Second, it amounts to claiming that fostering the participation of park users in
364 park governance has a scientific basis, as it is justified not only by the will to increase
365 political legitimacy but also because parks and their users cannot be isolated from one
366 another. As they form a complex and ever-evolving system, attending to human communities
367 and their interests, values and perspectives in park management and functioning is
368 scientifically grounded. The notion of the socio-ecosystem, then, gives scientific legitimacy to
369 procedural legitimacy, and the two forms of legitimacy reinforce one another instead of
370 diverging and potentially conflicting.

371 In the case of French NPs, a specific notion related to that of socio-ecosystems, ecological
372 solidarity, has been inscribed in the 2006 law, which has defined the area of membership of
373 NPs as "all or part of the territory of the municipalities which are eligible to become part of
374 the NP as a consequence of their geographical continuity and/or ecological solidarity with the
375 core area(s)". Conservation scientists Mathevet et al. (2016) have sought to give scientific
376 substance to this initially vague notion. They have conceptualized ecological solidarity as "the
377 interdependence of living beings in the context of spatial and temporal variation in their
378 physical environment" (Mathevet et al., 2016: 7). They underline that socioecological
379 interdependencies go beyond the NP boundaries (NPs and their surroundings form a single
380 socio-ecosystem), have multiple (e.g., economic, cultural, ethical, emotional) dimensions and
381 are place-specific. They also propose a method (companion modelling) to recognize, explore
382 and integrate the plurality of worldviews, values and interests present in and around NPs, as
383 well as their dynamical and asymmetrical interactions. By providing the notion of ecological
384 solidarity with a scientific definition, content, and method, they have contributed to anchoring
385 procedural legitimacy in a sophisticated scientific discourse (see Cumming, 2016: 53).

386 **3.2.2. Bioblitzes in national parks**

387 The term "bioblitz" was coined in 1996 in the US to designate a naturalist inventory carried
388 out over a short period of time (1-2 days) by scientists and lay people, with the goal of
389 identifying as many species as possible on site (Baker et al., 2014). Since the early 2000s,
390 many bioblitzes have been performed across the world, particularly in US NPs, to celebrate
391 the hundredth anniversary of the National Park Service in 2016 (Francis et al., 2017). The
392 managers of French NPs have generally preferred to entrust biodiversity inventories and

393 monitoring to specialists, but some bioblitzes were performed in the Mercantour NP in the
394 wake of an All Taxa Biodiversity Inventory (Granjou et al., 2014).

395 Naturalist inventories have been carried out in all French NPs since their inception by a range
396 of people, who all were qualified naturalists: national park staff, members of naturalist
397 organizations, professional taxonomists, etc. These inventories generally concerned a specific
398 taxonomic group, and their results were little disseminated outside very specialized spheres.
399 In turn, bioblitzes are presented as “events” (Baker et al., 2014) and are highly publicized.
400 Their accounts emphasize that anybody interested can participate, thus pointing to their
401 inclusiveness and openness (throughput legitimacy). They emphasize the total number of
402 species tallied during the inventories, as well as those that are new to the park and potentially
403 to science. They hereby contribute to presenting the parks as hotspots of biodiversity and
404 biodiversity science and hence to their scientific legitimacy.

405 However, bioblitzes are not just designed and presented as intense scientific events.
406 Participants are encouraged to look for and at animals and plants under the supervision of
407 scientists, to encounter and discover species unknown to them and, as bioblitzes are repeated
408 over the years, become familiar with them. Bioblitzes are thus designed as an exceptional
409 opportunity to engage with biodiversity and biodiversity knowledge through one’s physical
410 senses. Moreover, they are supposed to be “fun” (Baker et al., 2014), and they often involve
411 festivals, art performances, games, and community exhibits (Francis et al., 2017: 282; Baker
412 et al, 2014), i.e., collective activities that foster and display the sensitive and affective ties
413 between the parks and their local populations or visitors. Bioblitzes, then, also stage NPs as
414 hot spots of public experience of and attachment to biodiversity and to the parks themselves.
415 There is a clear expectation that this will give more legitimacy to the parks: “People who
416 value biodiversity and parks from an emotional connection they developed while participating
417 in citizen science are likely to vote in support of these values” (Francis et al., 2017: 290).
418 Designed and organized as scientific events capable of attracting and affecting the general
419 public and benefiting from intense media coverage, they can be interpreted as an attempt to
420 introduce procedural legitimacy into scientific legitimacy.

421 Efforts to combine substantive legitimacy and procedural legitimacy thus led to interesting
422 conceptual and practical innovations. However, they also have limitations. Reframing NPs as
423 socio-ecosystems, which allows grounding procedural legitimacy scientifically, remains
424 difficult to implement. Mathevet et al. (2016) stressed that ecological solidarity intends to go
425 further than ecosystem management, the implementation of which is already limited in NPs
426 (Arpin and Cosson, 2018). At this stage, it is unclear whether and how NP managers can
427 operationalize the notion of ecological solidarity. Regarding the introduction of procedural
428 legitimacy into scientific legitimacy, through citizen science initiatives and bioblitzes in
429 particular, it remains restricted in time (bioblitzes are ephemeral) and to already interested
430 publics.

431 **Conclusion**

432 Despite the release of increasingly alarming reports about the state of biodiversity, the
433 legitimacy of conservation policies remains fragile, even in the case of renowned and ancient

434 conservation tools, such as NPs. There is thus a need to understand how NPs seek to construct
435 their legitimacy. We identified two major sources of legitimacy: substantive legitimacy, with
436 science and law as its major pillars, and procedural legitimacy. The former is deeply anchored
437 in the French tradition and shaped the functioning of NPs during their first decades of
438 existence; the latter is a late arrival in French NPs and has been strongly influenced by the
439 publication of European guidelines for practitioners advocating the rise of participatory
440 processes. We showed that neither substantive legitimacy nor procedural legitimacy alone can
441 currently provide NPs with sufficient legitimacy. NPs, then, have no choice but to combine
442 the two approaches. This combination takes various forms and meets various levels of success
443 in different parks.

444 Our study has enlightened the scientists' role in the making of legitimacy in French NPs and
445 in implementing European conservation policies. While scientists have long contributed to
446 French NPs being a stronghold of substantive legitimacy, some of them have recently sought
447 to combine substantive legitimacy and procedural legitimacy by offering a scientific basis to
448 participatory processes and by making scientific activities more participatory, as in the case of
449 bioblitzes. This turn to participatory processes and procedural legitimacy has enabled
450 scientists to remain key architects of park legitimacy at a time when substantive legitimacy
451 has lost ground. Scientists have also fostered the circulation of notions and experiences at the
452 European level. The uptake by European scholars of the notion of ecological solidarity
453 proposed in the 2006 reform and then elaborated by French conservation scientists is a case in
454 point.

455 Our study also contributes to explaining the non-linearity of European conservation policies:
456 far from being simply implemented in the member states, as replacements of or additions to
457 existing national conservation policies, policies represent a hybrid. This hybridization is
458 contextualized: in the case of the French NPs, the precise balance between substantive
459 legitimacy and procedural legitimacy and concrete attempts to combine them vary according
460 to the specific history and socio-economic characteristics of the parks. Parks with a strong
461 collaborative tradition find it easier to strengthen procedural legitimacy than parks little
462 accustomed to working with local stakeholders. This leads to a variety of ways of making
463 legitimacy and implementing European conservation policies, not only across Europe but also
464 within the member states. This variety is not a problem but rather indicates the necessity to
465 find ways of legitimizing conservation policies that remain contested and fragile.

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