

## D.T4.3.1 Report on 'Supporting actor alliances.'

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# GREEN RISK 4 ALPS



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WP T4 - ACRI: Acceptance raising for Ecosystem-based risk control

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Goettingen, December 2020.

## GreenRisk4Alps Partnership

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## 1. Introduction

The Research-Integration-Utilization (RIU) model (GreenRisk4Alps Project Report, 2020b) is dedicated to knowledge transfer to practitioners and was applied in two Pilot Action Regions (PARs) as part of the GreenRisk4Alps project. The RIU model provides methods and tools that were also partially implemented in the other GreenRisk4Alps PARs. So-called integration forums represent a further development of the RIU model. The adapted model provides much-needed recommendations for stakeholder engagement and implementation strategies for the most relevant of them (GreenRisk4Alps Project Report, 2020b). Integration forums represent formal or informal settings where scientists, practitioners, and political actors with different existing power relationships come together to share science-based information (Kirchner and Krott, 2020, pp. 451-452). Based on a series of pre-analysis studies (GreenRisk4Alps Project Report, 2019a, 2020a, 2019b, 2019c), the concept allows selected actors to involve in bidirectional activities within a specific integration forum. In addition, the identified integration forums of the test PARs (GreenRisk4Alps Project Report, 2020c) provided interesting insights on which research results the different actors mainly focused on and why. These lessons learned could help the (transnational) GreenRisk4Alps project to evaluate the utility of the project's research findings from the test PARs for the actors in the remaining PARs.

By using the novel concept of integration forums (GreenRisk4Alps Project Report, 2020b), accompanied by detailed explanations in the PARs examples, we are able to guide targeted stakeholder involvement within the GreenRisk4Alps project making the practical relevance of the GreenRisk4Alps research findings more realistic. Therefore, this report aims to identify several promising integration forums in four PARs: Parc des Baronnies Provençales (France), Val Ferret and Southern Wipptal (Italy), and Kranjska Gora (Slovenia).

## 2. Identification of powerful (promising) stakeholders who might have an interest in the scientific project results

### 2.1 Pre-analysis

The identification of powerful actors who might have an interest in scientific project results is based on the pre-analysis carried out in 2018 and 2019 (GreenRisk4Alps Project Report, 2020a, 2019b, 2019c). The pre-analysis was coordinated by forest-policy scientists and included observations, interviews, and literature review (GreenRisk4Alps Project Report, 2019b). The consequent social network analysis (GreenRisk4Alps Project Report, 2020a), the interest analysis (GreenRisk4Alps Project Report, 2019b), and the power source analysis (GreenRisk4Alps Project Report, 2019c) were used to select actors with medium or strong interests in regulating and provisioning Ecosystem Services (ES) and to estimate their power means. Building on this, the first set of so-called promising actors was identified, and out of it, the specific actors were selected in the next step. For instance, from the promising actor's category "State Forest Agencies" (GreenRisk4Alps Project Report, 2019b), the Slovenian Forest Service was selected. This selection took place concerning both the (i) existence of actor's power means to implement ecosystem-based solutions for natural hazard mitigation in praxis (GreenRisk4Alps Project Report, 2019c) and (ii) actor's interest in the project results (e.g., maps on areas effective for high altitude afforestation GreenRisk4Alps Project Report, p.9). It means that powerful actors would be selected only if the project results can be tailored to their estimated scope of interests. These both processes, the selection of actors and the selection of research results, required coordination between the GreenRisk4Alps researchers from different disciplines, including forest scientists, geologists, geographers, forest-policy scientists and programmers.

## 2.2 Coordination process

The coordination process between GreenRisk4Alps scientists is a (hypothetical) procedure for information exchange. Social scientists provide information about promising actors, their interests, power sources, and conflicts of interest to their project partners, typically natural scientists. These partners developed the ecosystem-based natural hazard risk mitigation strategies based on innovative models and new tools like the Forest assessment tool (FAT) tool (GreenRisk4Alps Project Report, 2020c). This multi-lateral exchange process is useful for all researchers in the (interdisciplinary) consortium because it connects research results with the real problems and needs of actors from praxis (Böcher and Krott, 2016, p.3). Scientists often have limited notions of how to relate their research results to praxis or political decision-makers. Consequently, the large amount of research results they have produced remains a challenge for them and their contribution to knowledge transfer. They have doubts about what specific information to focus on in an appropriate integration forum. To overcome this shortcoming, the coordination process used in the GreenRisk4Alps project provided an opportunity to identify relevant points for researchers: to approach the selection of research results depending on the characteristics of the stakeholders identified in the pre-analysis. Based on this, the researchers can more effectively select the appropriate integration forum in the following step.

The coordination process was initiated by the questionnaire, which was conducted by the University of Goettingen. The questionnaire provided a brief overview and description of the (disciplinary) focus and main innovative modeling results (or related applications). It asked scientists to select from the listed ES those they would potentially match the stakeholders' interests. The potential and expected impact of the scientific results on these stakeholder interests was estimated. Based on this and the components from the pre-analysis (GreenRisk4Alps Project Report, 2019a, 2019b, 2019c, 2020a), opponents and supporters of the innovative scientific research results were identified among stakeholders (through an open discussion process between social and natural scientists). This process made the relationship between actors' interests and research outcomes more visible. In the case of conflicts between actors favouring different ES (GreenRisk4Alps Project Report, 2019c), we gained insights into the potential of the scientific information to contribute to conflict regulation. After completing this (hypothetical) coordination process, we had empirically verifiable entry points: Which actor, science-based information, and target-group-oriented communication could be addressed through our knowledge transfer activities.

In a second step, experiences from ongoing (or already implemented) integration activities in the PARs were included in this coordination process (Kirchner and Krott, 2020, p.454). From these experiences, it was possible to outline more precisely which bricks of scientific information were in the area of interest of which actors from practice. Often, certain research findings appeared in a different light when evaluated from the stakeholder perspective, which was a useful indication for further integration activities. It should be noted that the bricks of scientific information identified as interesting in one PAR may not be interesting or applicable in another PAR. However, the focus on six PARs in five countries in the GreenRisk4Alps project contributed significantly to the more efficient coordination process and more promising knowledge transfer.

The further aim of the coordination process was to contribute to regulating conflicts of interest between different actors in Kranjska Gora, the Southern Wipptal, or Val Ferret. These conflicts arise when the interests of actors in ES cannot be met simultaneously. Therefore, it was important to assess whether GreenRisk4Alps results would negatively or positively influence powerful actors' priorities in ES provision (GreenRisk4Alps Project Report, 2019b (GreenRisk4Alps Project Report, 2019c). Accordingly, we proceeded to identify powerful actors in terms of their priority interests in ES provision in the following actor categories:

- Green prevention – Forest agencies in all PARs
- Technical prevention – Agencies of protection of risks, avalanche and torrent control in all PARs
- Wood provision – State agencies for forests in the PAR Southern Wipptal and Kranjska Gora
- Game provision – Hunters in all PARs
- Tourism – municipalities in all PARs
- Outdoor recreation - municipalities in all PARs

The aforementioned actors faced several emerging conflicts of interest within PARs (GreenRisk4Alps Project Report, 2019c). Actors strive to manage such conflicts concerning their own agendas. This situation is a strong driver of the knowledge transfer process and must be considered within the coordination process for selecting targeted scientific information. We found the following identified conflicts in the Slovenian, Italian, and French PARs.

- Green prevention vs. timber provision
- Reducing game densities to prevent damage in protection forests
- Certain authorities prefer different prevention measures due to uncertainties about the long/short term occurrence of effectiveness
- Different responsibilities of authorities for technical/green prevention
- Effectiveness/cost efficiency of technical prevention vs. other prevention measures
- Wood provision vs. green protection
- Extent/declaration of production forests vs. protection forests
- Forest management in production forest vs. in protection forests
- Unrestricted dispersal of game species vs. restricted dispersal
- Hunting interests vs. interests of the outdoor recreational user (e.g., skiing, hiking, climbing, biking)
- Traditional hunting behaviour vs. economically driven hunting due to forestry interests
- Prioritization of hunting as a source of income for forest owners vs. hunting for forestry interests / green prevention interests

All participating project partners have worked in close collaboration on the five work packages of the GreenRisk4Alps project. A wide range of research findings have been developed in each of them (GreenRisk4Alps, 2020). Some new findings can support the actor's interests and help regulate conflicts. Based on this, the coordination process leads to a selection of scientific information that can be tailored to practitioners' needs. Important research results for specific actors could therefore be:

- Forest protection matrix
- Flow-py model
- TEGRAV model
- Maps for the direct protection function of forests for different natural hazards
- Maps for efficient green mitigation areas
- Maps with impact reduction index
- Forrest assessment tool-FAT
- Rapid risk appraisal
- Regional hot spots analysis

However, this list of important research results should not hide the fact that practitioners do not necessarily need scientific information to act in praxis. Rather, it can be assumed that non-scientifically based actions (Böcher and Krott, 2016, p.31) are the usual practice for actors' decisions. Consequently, research results must be seen as additional sources for action in order to assert one's interests (Böcher and Krott, 2016, p.158) and legitimize action (Habermas, 1968). In many cases, practitioners focus only

on one outcome or on a certain brick of the research project's findings. Despite the in-depth pre-analysis and the conducted coordination process, predictions about the actor's behaviour are subject to considerable uncertainty. We can address this by providing practitioners with a feasible maximum of scientific information from which to choose. However, in an integration forum, we must accept practitioners' and politicians' time constraints (Böcher and Krott, 2016, pp. 6-7). Nevertheless, despite selecting research results within the forums, the project should not hide any research results. Instead, and supported by the aspect that the GreenRisk4Alps project is publicly funded, it should share all research results with the public, for example, by providing open access to the results.

The coordination process itself will follow a different logic if there is an internal link to research within an existing integration forum. This happens, for example, when departmental research is a participating actor or key actor in the forum and is simultaneously involved in the research project. Here, both the actors and the forum's topics are largely pre-selected and, therefore, often dominated by a particular actor (Kirchner and Krott, 2020). The interests and demands of the actors for certain research results should be clearer than in other cases. From the perspective of the project, the selection of research results is more targeted and detailed. In Slovenia, for example, the Slovenia Forest Service is involved as a GreenRisk4Alps project partner in the reformulation of the manual for assessing the protective function of forests. The commissioned working group is an existing integration forum with an internal link to research and will focus on that specific topic as well as the related scientific information.

### 2.3 Selected actors in the PARs

The coordination process itself will be based on the RIU model. Promising actors were identified through the preliminary analysis. This pre-selection of actors is based on three categories: key actors, participating actors, and target actors (Kirchner and Krott, 2020, p.453). Each of the categories is relevant for the subsequent selection of the appropriate integration forum (chapter 2.4) for the respective target actor(s). Table 1 presents a selection of actors that are most promising for the knowledge transfer process in the three PARs: Slovenia (Kranjska Gora), Italy (Val Ferret, Southern Wipptal), and France (Parc des Baronnies).

Actors category	Choice of promising actors for knowledge transfer within four PARs		
	Slovenia - Kranjska Gora	Italy - Val Ferret and Southern Wipptal	France - Parc des Baronnies Provençales
<ul style="list-style-type: none"> <li>State agencies for risk protection / State agencies for forests</li> </ul>	<ul style="list-style-type: none"> <li>Slovenia Forest Service</li> </ul>	<ul style="list-style-type: none"> <li>Aosta Valley Forestry Corps</li> <li>Hydraulic Works</li> <li>Hydrogeological Management of Mountain Basins</li> <li>Department of Agriculture, Forestry, Tourism and Civil Protection</li> <li>Forest Inspection Sterzing</li> <li>Agency for Civil Protection</li> </ul>	<ul style="list-style-type: none"> <li>Regional Natural Park of the Baronnies-Provençales</li> <li>Departmental Direction of Territories (DDT)</li> <li>Ministry of Ecological Transition (old name: Ministry of Ecology and Sustainable Development)</li> <li>National Geological Service (brgm)</li> <li>Service of Restoration of Mountain Lands (RTM) (within the National Forest Office).</li> </ul>
<ul style="list-style-type: none"> <li><b>Municipality</b></li> </ul>	<ul style="list-style-type: none"> <li>Municipality of Kranjska Gora</li> </ul>	<ul style="list-style-type: none"> <li>Municipality of Courmayeur</li> <li>Municipalities: Sterzing, Brenner, Pfitsch</li> </ul>	<ul style="list-style-type: none"> <li>Municipalities such as Montréal-Les-Sources and Sahune, Grenoble</li> </ul>
<ul style="list-style-type: none"> <li><b>Provider of traffic Infrastructure</b></li> </ul>	<ul style="list-style-type: none"> <li>Motorway company: Družba za avtoceste v Republiki Sloveniji (DARS d.d.)</li> </ul>	<ul style="list-style-type: none"> <li>Autostrada del Brennero S.p.A. /Brennerautobahn AG</li> <li>RFI- Italian Railway Network</li> </ul>	<ul style="list-style-type: none"> <li>Central Laboratory of Bridges and Roads (LCPC)</li> </ul>



<ul style="list-style-type: none"> <li>• <b>Forest owner</b></li> </ul>	<ul style="list-style-type: none"> <li>• Farmers and private forest owners</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural and forest owners groups (Agrargemeinschaften-Interessentschaften)</li> <li>• Private forest owner</li> </ul>	<ul style="list-style-type: none"> <li>• Farmers/Farmers representatives and forest owners</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Hunter</b></li> </ul>	<ul style="list-style-type: none"> <li>• Hunting clubs (private) and hunting on public grounds (Slovenian Forest Service) in NW Slovenia</li> </ul>	<ul style="list-style-type: none"> <li>• Hunting Association of South Tyrol</li> </ul>	<ul style="list-style-type: none"> <li>• The National Office of Hunting and Wild Fauna</li> <li>• Communal Association of Approved Hunting</li> <li>• Private hunting company</li> </ul>

Table 1: Choice of promising actors for knowledge transfer in the Pilot Action Regions Kranjska Gora, Val Ferret, Southern Wipptal, and Parc des Baronnies Provençales

### 3. Identified integration forums

Data on integration forums were collected through expert interviews and targeted questions on the topic, observations, and processes already known from other research projects or formal procedures by law during the data collection in work package 2 and 4 (GreenRisk4Alps Project Report, 2019a, 2019b, 2019c, 2020a, 2020b, 2020c).

The integration forum concept seeks to meet the selected actors in the real world and engage them as an ally. As a formal or informal setting of practitioners and/or political actors exchanging science-based information, the integration forum empowers actors to assert their own interests and thus supports the knowledge transfer process (Kirchner and Krott, 2020, pp. 451-452). Thus, research results become part of the decision-making process by choosing the appropriate integration forum. In principle, we can use integration forums to target actors with specific scientific information at all administrative levels. In the following, we will describe selected examples of integration forums in the PAR of Kranjska Gora in Slovenia, Val Ferret and Southern Wipptal in Italy, and Parc des Baronnies in France.

#### 3.1 Slovenia - Kranjska Gora

After in-depth analysis (social network analysis, interest analysis, and the power source analysis), promising actors were identified. These actors have medium and strong interests in regulating and /or provisioning ecosystem service (ES), sufficient power resources, and a stake in project outputs. For the State Forestry Agencies category (GreenRisk4Alps Project Report, 2019b), the **Slovenia Forest Service** was selected as powerful. It is a public organization (ca. 730 employees) with strong forestry competencies. It carries out tasks and activities related to forest management (national, regional, and local), independent of forest ownership: forest management planning, monitoring, silviculture (no logging, extraction, transport, or selling of wood), forest protection, construction, and maintenance of forest roads, monitoring of wildlife populations, hunting, forestry advice to forest owners, research work, rural development, awareness-raising and education of forest owners, youth and public. These tasks are carried out by the headquarters (Ljubljana), 14 regional, and 69 local units. An experienced forester from headquarters, who was assigned to participate in the GreenRisk4Alps project (Slovenia Forest Service is a project partner), provided a bridge between the project and the State Forest Service working group. This working group, consisting of the young and ambitious chief and the experienced foresters from regional offices, represents an existing integration forum. This forum was charged in 2020 with the reformulation of the existing "Manual for assessing the protective function of the forest." The interest in the GreenRisk4Alps project was regarding its results on green prevention. These results could find their way into the renewed manual if forum participants recognized their potential for improving forest protective function assessment. Accordingly, during the forum, the scientific results (science discourse) were confronted with the arguments of the Slovenia Forest Service experts (expert discourse), and a selection was triggered. The new and well-founded discourse of science met the expert discourse of the traditionally accepted arguments due to the frequent use in policy means (regulative means and/or incentives). Thus, the selection of scientific arguments and their integration

into the expert discourse occurs insofar as these arguments fit the formal and informal interests of the Slovenia Forest Service.

One of the Slovenia Forest Service tasks is to provide plans and subsidies for private forest owners to implement these plans. As planned, silvicultural measures in private forests are subsidised only to a small extent (10-30%), which is considered insufficient and demotivating for forest owners (Sonnenschein Kavcic, 2016). The state forest service has an interest in increased subsidies. This is especially true for private forest owners (often farmers) who have their land within the forest's defined area with protection function. One might expect that risk prevention and sanitation activities would increase with the increase in subsidies, but the Ministry makes the final decision. The Ministry first considers whether the increased budget is available (probably not with the larger amount). This limit of power through budgeting will ultimately determine how much of the GreenRisk4Alps modeling (to more accurately assess forest protection function) will be accepted by the expert group and included in the renewed manual. It means that while the scientific results have a chance of triggering changes in the manual, they are not strong enough to influence the bylaw (for making forest management plans). This bylaw is the legally binding anchor of the manual, and its reformulation is not triggered by scientific modeling.

The manual will be implemented through forest management planning in the field. If the renewed manual is approved, it will take a long time to be implemented through the new management plans in many regions (not before 2030). Due to the overall situation with the COVID-19, the renewal procedures were halted or progressed slowly. To date, we have no information on whether or not elements from the GreenRisk4 Alps project have been/will be included in the new version.

Another existing integration forum is "Training seminars for private forest owners." These training seminars were established by a previous international project and supported by the Slovenia Forest Service staff. Due to its partner role in the GreenRisk4Alps project, the Slovenia Forest Service has an opportunity to continue seminars by incorporating the latest scientific project results into the existing structures for trainers and forest owners. Trainers have the opportunity to select content from the GreenRisk4Alps results and integrate it into their courses (teaching discourse) they offer to forest owners. As a result, a modest improvement in the teaching discourse can be expected. Despite the strong commitment of the Slovenia Forest Service forest owner training, the resources for training are quite small, considering ca. 400.000 private forest owners in Slovenia. Therefore, the expected impact on the forest owners cannot yet be estimated.

### 3.2 Italy - Val Ferret and Southern Wipptal

In PAR Courmayeur, Italy, the Planpincieux glacier endangered certain areas in Val Ferret in September 2019 by a threatening collapse of about 250.000 cubic meters of glacier ice (ANSA, 2019). This was caused by rapid glacier movement during a hot summer in the region and exposed several properties to increased risk, including the main road into the valley. Based on the current situation, an intense need arose for scientific information based on reliably obtained data for risk assessment, scenario planning, and development of management options (Giordan et al., 2020). The responsible authorities, the Municipality of Courmayeur and the Department of Hydrogeological Management of Mountain Basins of the Autonomous Region of the Valle d'Aosta, serving as key stakeholders, sought to obtain the needed information through well-established information channels between science and practice (Istituto di Ricerca per la Protezione Idrogeologica, 2017). The Safe Mountain Foundation was one of the scientific advisors and provided its expertise regarding the glacier to practitioners as it had done in similar situations before. The scientists have benefited from the additional funds made available for

technical equipment provided by the authorities. The scientific information that comes from the GreenRisk4Alps project could also be helpful in the future. For example, the risk mitigation role of forests in the current situation is present but very minimal. In any case, the risk management activities are interrelated, and certainly, the contemporary situation in Val Ferret can be improved by good practices resulting from the project results. Kingdon (2003) defines this situation as a "window of opportunity." This classical knowledge transfer situation can be improved and expanded to existing integration forums based on existing and well-functioning information channels. Moreover, actors are forced to use scientific information to perform their public functions in a state-of-the-art way (Scolobig and Pelling, 2016; Allegretti, 2017). The Italian legal system, especially in civil protection, holds responsible authorities, such as mayors, personally liable in case of accidents or damages caused by natural hazards events. Following this legal practice means obeying scientific developments and implementing its reliable results. Jurisprudence as a coercive mechanism is an independent integration forum, but here it interacts with another.

In general, the forest protection effect in Val Ferret is limited. As described above for glacier collapse, many natural hazard processes (debris flows and avalanches) originate at higher altitudes, far from the timberline. The latter is more or less narrow due to the high average altitudes of the Val Ferret valley. Therefore, a higher protective effect of the forest on the west side of the valley does not exist. The south-eastern side of the valley has a more continuous forest cover of up to 2000 m. A higher protective effect of the forests is expected on this side of the valley. This does not mean that the modeling results are irrelevant for Val Ferret. They could be of interest to other regions in the Aosta Valley, especially concerning the modeling background. Conservation and forest authorities should be approached as key actors with selected information through a bilateral discussion, namely the Aosta Valley Forestry Corps, Hydraulic Works, and Hydrogeological Management of Mountain Basins (GreenRisk4Alps Project Report, 2020a, 2019b, 2019c).

A new integration forum was established by the project partner Safe Mountain Foundation through a conducted workshop to inform the regional mountain guides and tourism operators about the technical monitoring and forecasting activities in the Val Ferret. The stakeholders involved were to be recruited as multipliers to inform clients about the activities and the monitoring equipment installed in the Val Ferret valley. The installations have been destroyed several times in the past, despite being an integral part of the valley's disaster early warning system concept to protect human life and property and close roads automatically in case of a glacier collapse. The GreenRisk4Alps project served as a platform to initiate the forum and integrate forecasting and monitoring activities into the integral risk management process. Different mitigation options, e.g., protection forests and their protective effect, were additionally discussed and hopefully lead to a stronger awareness of the target actors, triggered by the mountain guides and tourism operators.

Forest owners would like to have relevant data for their forest property, particularly on stand structure, growth rates, wood supply, and in general on the potential of their own forest to fulfil various functions such as protection against avalanches. In this sense, the GreenRisk4Alps project provides several research results that could be in the interest of forest owners. One of them is calculating the protective effect on a certain standpoint (GreenRisk4Alps Project Report, p.6). In order to address the forest owners precisely with this information, the foreseen annual routine of 'Forsttagsatzung' (Forest Day Meeting) is an appropriate existing integration forum. According to Article 17 of the South Tyrolean Forestry Law, this forum has an advisory and decision-making function, which is performed by the District and Municipal Forestry Inspectorate. The District Forestry

Inspectorate acts as a key player in this process. The main purpose of the forestry meeting is to present to the representatives of the forest owners the results of the previous year's forest management and the planned management measures, such as the approval of logging, for the next year. Both the county forest inspectorate and the mayor have trust and expertise. At the same time, they are powerful formal actors resulting from the South Tyrolean Forest Act (1996). Selected scientific information could address the interests of relevant actors in this promising existent integration forum. Scientific information has to be brought in in by the project researchers as an external link.

The second type of integration forums is hybrid. These forums might exist, and a link to science may exist or might be yet established, but the forum is unknown to the project (Kirchner and Krott, 2020, p.453). A promising way to activate a hybrid forum is to contact key actors in a bilateral discussion. In this integration forum, a trustful exchange of scientific information is possible because no other actors are involved, and the reference to the state of research is given directly via an external link to the research project. Only the key-actor can grant access to the specific forum. The project has to select such interested and powerful actors. In Southern Wipptal PAR, we have identified two promising actors for selected project results that could serve as key-actors to an expected but unknown integration forum. One is the forest planning office of South Tyrol, together with the forest inspectorate of Sterzing. Here the responsibilities for forest function planning and forest management planning are bundled. The latter is a ten-year repeating routine for every forest property with 100 ha and more (South Tyrolean Forest Act, 1996). As a data-based process, the gained data from the GreenRisk4Alps project could help support and improve the planning phase in certain aspects, especially in forest function planning. The second promising actor for the bilateral discussion is the Civil Protection Agency of South Tyrol and its functional area Avalanche and Torrent Control. The FAT Tool and the underlying Flow-py model could be of high interest for the civil protection agency. A maximum of targeted information could be exchanged between the GreenRisk4Alps researchers and the Avalanche and Torrent Control experts in bilateral discussions. In terms of knowledge transfer, the bidirectional process could begin within this forum, or a follow-up forum will be opened by the key actor.

### 3.3 France - Parc des Baronnies Provençales

In the French PAR "Parc des Baronnies Provençales," dangerous natural hazard events resulting in severe damage and fatalities are not frequent. The last significant event occurred in September 1992, when almost 40 people were killed from inundations. Since then, the damage has not been extensive. These occasional events increase the challenge for state authorities to convince local people with prevention measures, as they have little awareness of such measures for their lives. The main current events in this PAR are landslides, forest fires, and river floods. Based on field observations, the authorities rely on the small green and traditional protection measures such as road signs and stone guards on the roadsides. Government institutions at the regional and departmental levels may encounter resistance from municipalities to implement these measures. The creation of the Baronnies Provençales Natural regional park in 2015 helped to support the implementation processes, mainly by organizing several workshops and meetings to bring together different actors from different state agencies and municipalities to raise awareness and mediate various conflicts. There are 98 small municipalities with 36,000 inhabitants that have already joined the park. Park staff have the trust of the local communities, which is their main source of strength. They also have good relationships with the mayors in the area. The educational objectives and the services provided to the inhabitants of the municipalities that have joined the park support this trust relationship.

Implementing new measures developed under the GreenRisk4Alps project would require the local communities' support, as approximately 82% of forests are privately owned. In addition, private land ownership is highly fragmented, with more than 10,000 owners. A further nearly 90% of these lands

are no larger than 100 hectares<sup>1</sup>. Therefore, support for these communities is essential for a successful knowledge transfer process. In order to obtain this support, incentives (mainly financial) are needed for these local people. Besides, a key player who can be trusted by these 98 communities and forest owners is essential for this knowledge transfer.

Therefore, it can be assumed that the meetings organized by the park are a hybrid forum in which the park can play the role of a key actor that has already successfully established a relationship of trust with local communities. A first bilateral exchange can take place between the researchers of the GreenRisk4Alps project and the unit in charge of natural risks in the park. This exchange aims to present the scientific solutions that may be of high interest to this unit within the park. The park can then organize this type of workshop to promote the solutions and convince different stakeholders (mainly municipalities and local communities, farmers, forest owners, hunters) and related associations of the importance of implementing the project results. Thus, these actors can be considered as participating and target actors at the same time.

The models developed by the project researchers focus mainly on rockfalls and shallow landslides. The innovation in these models is considering forests in these two natural hazards and determining how these forests can help mitigate the hazards. Besides, researchers on the project developed the novel FAT Tool to compare different afforestation, artificial and mixed measures. This innovative tool may be of interest to French authorities such as the Departmental Directions of Territories (DDT) and the Ministry of Ecological Transition. These two authorities have started a collaboration with the National Geological Survey to produce evaluations of ground motion inventories in different departments<sup>2</sup>. The process of realizing these inventories can be considered an existing and well-established forum. In this forum, the main actor realizing these inventories is the National Geologic Survey mentioned above, which is setting the forum of expert rounds to create these departmental public documents. The main actors participating in this forum are the Ministry of ecological transition and the DDT, named partners of the National Geological Survey. Depending on the particular inventory, either the DDT or the Ministry of Ecological transition will initiate these risk assessments and establish the corresponding legislative frame. The targeted actors of this forum are mainly forest and landowners, municipalities, forest planning experts, and the Mountain Restoration Service (RTM) in the National Forest Service. Several risk assessment documents<sup>3</sup> mention that the risk assessment prepared will be included in the national database managed by the National Geological Survey will be included in national database managed by the National Geological Survey, RTM, and the Central Laboratory of Bridges and Roads (LCPC). Thus, RTM and LCPC can also be considered as target actors. In this forum, the GreenRisk4Alps project researchers are considered external, as they are not included in this existing expert panel forum. In order to have access to this forum, Frederic Berger from IRSTEA can request access from the key actors. Frederic can also decide to start a bilateral discussion with DDT Grenoble and the Municipality of Grenoble for whom the project's outputs might be of great interest. In this case, it is another existing forum building on the first one where DDT Grenoble or the Municipality of Grenoble are key actors and can implement the measures which are suitable for the mitigation of risks mentioned in the inventory. In this second existing forum, participating and target actors can be considered as the same. They are mainly forest and landowners.

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<sup>1</sup> <https://www.ofme.org/documents/actualite/201207/CFTBaronniesProvencales-DocumentFinal.pdf>

<sup>2</sup> [http://www.ardeche.gouv.fr/IMG/pdf/Rapport\\_inventaire\\_MVT\\_cle77eccc.pdf](http://www.ardeche.gouv.fr/IMG/pdf/Rapport_inventaire_MVT_cle77eccc.pdf)  
<http://infoterre.brgm.fr/rapports/RP-68502-FR.pdf>

<sup>3</sup> [http://www.ardeche.gouv.fr/IMG/pdf/Rapport\\_inventaire\\_MVT\\_cle77eccc.pdf](http://www.ardeche.gouv.fr/IMG/pdf/Rapport_inventaire_MVT_cle77eccc.pdf)

### 3.4 Overview of identified integration forums in the PARs

Regarding the RIU-guided knowledge transfer process, we summarised the integration forums of the four outstanding PARs with their main criteria in the following table.

Type of selection forum	Selection forum	Key actors	Participating actors	Target actors	Link to research
<b>Existing</b>	<ul style="list-style-type: none"> <li>Forsttagsatzung (Southern Wipptal)</li> </ul>	<ul style="list-style-type: none"> <li>Forest Inspection Sterzing</li> </ul>	<ul style="list-style-type: none"> <li>Municipalities: Sterzing, Brenner, Pfitsch</li> </ul>	<ul style="list-style-type: none"> <li>Forest owner</li> <li>Mountain farmer</li> </ul>	External but access to research due to observer role
	<ul style="list-style-type: none"> <li>Existing expert rounds – Monitoring and Advisory Board (Val Ferret)</li> </ul>	<ul style="list-style-type: none"> <li>Department of Hydrogeological Management of Mountain Basins of the Autonomous Region of the Aosta Valley</li> <li>Municipality of Courmayeur</li> </ul>	<ul style="list-style-type: none"> <li>Professional authorities</li> <li>Internal/external experts</li> </ul>	<ul style="list-style-type: none"> <li>Citizen</li> <li>Tourist Operator</li> <li>Tourists</li> </ul>	Internal due to the involved project partner Safe Mountain Foundation
	<ul style="list-style-type: none"> <li>Expert group reformulating "Manual for assessing the protection function of the forest" (Kranjska Gora)</li> </ul>	<ul style="list-style-type: none"> <li>Slovenia Forest Service</li> </ul>	<ul style="list-style-type: none"> <li>Director, experts from regional and local offices</li> </ul>	<ul style="list-style-type: none"> <li>All forest independent of ownership</li> </ul>	Slovenia Forest Service as a project partner
	<ul style="list-style-type: none"> <li>Training seminars for private forest owners (Kranjska Gora)</li> </ul>	<ul style="list-style-type: none"> <li>Slovenia Forest Service</li> </ul>	<ul style="list-style-type: none"> <li>Trainers</li> </ul>	<ul style="list-style-type: none"> <li>Private forest owners</li> </ul>	
	<ul style="list-style-type: none"> <li>Existing expert round - departmental inventories of land movements (Parc des Baronnies Provençales)</li> </ul>	<ul style="list-style-type: none"> <li>National Geographical Service (France)</li> </ul>	<ul style="list-style-type: none"> <li>Experts</li> <li>DDT Ministry of Ecological transition</li> </ul>	<ul style="list-style-type: none"> <li>Forest and landowners</li> <li>Municipalities</li> <li>RTM</li> <li>LCPC</li> <li>Forest planning experts</li> </ul>	External
	<ul style="list-style-type: none"> <li>Implementation of (mitigation) measures Parc des Baronnies Provençales) (</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Ecological transition (France)</li> <li>DDT Grenoble and Municipality of Grenoble</li> </ul>	Forest and Landowners	<ul style="list-style-type: none"> <li>Forest and landowners</li> </ul>	External
<b>Hybrid</b>	<ul style="list-style-type: none"> <li>Bilateral discussion (Southern Wipptal, Val Ferret, Parc des Baronnies Provençales)</li> </ul>	<ul style="list-style-type: none"> <li>Forest Planning Office of South Tyrol and the Forest inspection of Sterzing</li> </ul>		<ul style="list-style-type: none"> <li>Professional authorities</li> <li>Municipalities</li> <li>Forest owner</li> <li>Mountain farmer</li> </ul>	External
		<ul style="list-style-type: none"> <li>Civil Protection Agency of South Tyrol and the Functional Area Avalanche and Torrent Control of South Tyrol</li> </ul>			
		<ul style="list-style-type: none"> <li>Aosta Valley Forestry Corps and Hydraulic Works and Hydrogeological Management of Mountain Basins</li> </ul>			

		<ul style="list-style-type: none"> <li>The Natural Regional Park of Baronnies Provençales</li> </ul>			
<b>New</b>	<ul style="list-style-type: none"> <li>Workshops (Val Ferret)</li> </ul>	<ul style="list-style-type: none"> <li>Safe Mountain Foundation</li> </ul>	<ul style="list-style-type: none"> <li>Mountain Guides</li> <li>Tourist operator in Val Ferret</li> </ul>	<ul style="list-style-type: none"> <li>Tourists</li> <li>Outdoor and recreationalists</li> </ul>	External

Table 2: Overview of identified integration forums inside the Pilot Action Regions, Val Ferret, Southern Wipptal, and Parc des Baronnies Provençales.

## 4. Conclusion

In all PARs, we found integration forums that serve as potential allies to trigger knowledge transfer. In our research to identify integration forums, we found more forums than initially expected. On the one hand, this is due to the project's new perspective of actively thinking about integration for knowledge transfer. On the other hand, many forums were identified directly from existing, hybrid, or new integration forums by observing and analyzing the discussions inside the forums (e.g., in Val Ferret) within the monitoring and advisory board expert group and the conducted workshop to inform the regional mountain guides and tourism operators. From there, initiating bilateral discussions with the Aosta Valley Forestry Corps, the Hydraulic Works, or the Hydrogeological Management of Mountain Basins in the Autonomous Region of the Valle d'Aosta seems to be promising hybrid forums. This observation and analytical process are particularly suitable for obtaining other promising integration forums. In these discussions, a trustworthy exchange of scientific information and information about other forums or successor forums is possible. Key actors in these integration forums were quickly identified, and initial contacts were mobilized through the start-up forum. In this context, the advantages of bilateral discussions are that unbalanced power relations are avoided, open discussions about clear interests and clear responsibilities are possible, and the chances of selecting concrete project results become clearer. Existing integration forums are also based on clarified power relations and clear responsibilities, which improves the chances for information exchange. However, the selection of scientific information faces strong competition between the existing knowledge of participating experts and the scientific information of the GreenRisk4Alps project.

What we have learned about new integration forums within the GreenRisk4Alps six PARs is organizing new integration forums through workshop or roundtable formats, usually take place in unbalanced power relationships and overlapping responsibilities among participants. Therefore, depending on the number of participants, several conflicts of interest could arise. These characteristics could lead to more or less weak scientific information exchange, which is crucial for the success of knowledge transfer. This does not mean that new integration forums will not have practical relevance. If such forums are organized by considering the pre-analysis facts and conducting the coordination process as well as aiming at a very specific issue, they can unfold impact in praxis too. The example of the conducted workshop to inform the regional mountain guides and tourism operators in Val Ferret is such a successful example of a new integration forum focussing on a specific issue.

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