

# Hydroelectric Power Generation in Austria: A History of Archetypal Conflicts with Nature Conservation

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## Introduction

“Modern life is in many ways characterized by the ready availability of energy.”<sup>1</sup>

The reliance of Western-style societies on technical power supply networks is increasing in virtually all areas of life. The investment of considerable resources is needed to make energy available, and this investment competes with the potential alternative use of these resources. This is the topic of this contribution.

The majority of people have, for centuries, lived on what nature provided readily or on what peasants gained from it through arduous work. This situation changed profoundly around the end of the nineteenth century, when Western society entered the age termed “High Modernism” by American political scientist James C. Scott.<sup>2</sup> This period was marked by a strong belief in technological progress and the concept of man being able to gain mastery over nature. Nature should be manageable and controllable; according to this technocratic notion of the world, nature was more or less the raw material for modern engineers, technicians, and planners to process and improve.<sup>3</sup>

Our concept of nature has changed as an anti-technocratic shift of paradigms developed along with a series of events—some of which will be explored in more detail below.

Rivers are multi-functional systems. They ensure the provision of water and have for centuries been used as transport routes. They have always been the reason for people to settle and establish businesses along their banks; they provide food, and they are used for a variety of recreational activities.

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1 “Die moderne Existenz ist in vielfältiger Weise durch die leichte Verfügbarkeit von Energie geprägt.” Martin Schmid and Ortrun Veichtlbauer, *Vom Naturschutz zur Ökologiebewegung: Umweltgeschichte Österreichs in der Zweiten Republik* (Innsbruck: Studienverlag, 2006), 24.

2 James C. Scott, *Seeing like a State—How Certain Schemes to Improve the Human Conditions Have Failed* (New Haven-London: Yale University Press, 1998).

3 Schmid and Veichtlbauer, *Vom Naturschutz zur Ökologiebewegung*, 29.

Apart from the human needs they serve, rivers are of essential importance for the ecosystem.

Hydroelectric power generation is accompanied by massive interventions in the related aquatic ecosystem. Handling these interventions has always determined both scientific discourse and political debate, and it still does. The history of hydropower use is also the chronicle of an enduring confrontation between conflicting social value systems, needs, and images of nature.

The debate was, and even now continues to be, of great importance in many parts of the world, for example, in the mountainous regions of the Caucasus, the Himalayas, the Andes, and East Africa. This contribution traces this history of conflict based on the example of the alpine Republic of Austria. Here, topographic and climatic conditions favor the use of hydroelectric power to a special degree.

These topographic conditions have left their stamp on Austria's national identity and even found their way into the Austrian anthem "Land of mountains, Land by the stream" ("*Land der Berge, Land am Strome*"). In every survey about the assets of Austria, its beautiful landscape and intact natural wonders are regularly among the top mentions. Two iconic examples of such are the Hohe Tauern National Park in the Austrian Central Alps and the Donau-Auen National Park in the Danube floodplains. Plans to use hydropower played an important role in the history of both parks.

Nature conservation and the use of hydropower are two essential elements of the Second Republic, and the two interests collide in exemplary manner in the Hohe Tauern mountain range and the Danube floodplains. This article investigates the various concepts of nature conservation that became apparent in these confrontations.

The example of Austria highlights the conflicts, dilemmas, and ambiguities that exist in the dynamic relationship between nature conservation and hydropower use in archetypal discourses. It also illustrates the processes involved in the ongoing reassessment of a technology.

## Hydroelectric Power Use in Austria

There is extensive documentation of the history of hydroelectric power use in Austria, with a particular focus on the years of National Socialism.<sup>4</sup> The brief historical overview below is intended to provide a better understanding of the events described in the following.

Established after the First World War in 1918, the Republic of Austria saw the development of an electricity supply industry based on hydropower as an opportunity to compensate for the loss of the monarchy's rich coal fields and to achieve energy self-sufficiency. Rivers have in fact been used extensively for the generation of energy in Austria since the Middle Ages, but as the energy produced had to be used on the site of generation, the number of small weirs and mill wheels was exceptionally high. With the development of new technologies, the location of energy production and the place of energy use finally became detached from each other. This made it possible to set up power stations in places where conditions were favorable and to transport the generated electricity long distances to the places where it was needed.<sup>5</sup>

Initially, the implementation of major power plant projects progressed slowly, mainly due to the failure to obtain financing. The annexation of Austria to the Third Reich brought with it the initiation of major power supply projects to serve the prestige of the National Socialist regime. Energy demand in Western Europe increased dramatically after the Second World War.<sup>6</sup> In the Second Republic, the use of hydropower constituted an important pillar in the reconstruction and the economic boom of the 1950s and 1960s.

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4 Richard Hufschmied, "Wasserkraft, Elektrizität und Gesellschaft in Österreich von 1880 bis in die 1930er-Jahre" (PhD diss., University of Vienna, 2011); Richard Hufschmied, "'Weißes Gold' in (Deutsch-)Österreich – Kontinuität und Wandel mit dem Epochenjahr 1918," in *Wasserkraft. Elektrizität. Gesellschaft. Kraftwerksprojekte ab 1880 im Spannungsfeld*, ed. Oliver Rathkolb, Richard Hufschmied, Andreas Kuchler, and Hannes Leidinger (Vienna: Kremayr & Scheriau, 2012), 84–148; Oliver Rathkolb, Florian Freund, ed., *NS-Zwangsarbeit in der Elektrizitätswirtschaft der „Ostmark“ 1938–1945* (Vienna: Böhlau, 2002); Georg Rigele, "Das Tauernkraftwerk Glockner-Kaprun – Neue Forschungsergebnisse und offene Fragen," *Blätter für Technikgeschichte* 59, (1997): 55–94; Marc D. Landry, "Europe's Battery: The Making of the Alpine Energy Landscape, 1870–1955," (PhD diss., Georgetown University, 2013); Schmid and Veichtlbauer, *Vom Naturschutz zur Ökologiebewegung*.

5 Gertrud Haidvogel, Sabine Preis, Severin Hohensinner, Susanne Muhar, and Michaela Poppe, "Flusslandschaften im Wandel," in *Flüsse in Österreich: Lebensadern für Mensch, Natur und Wirtschaft* ed. Gregory Egger, Klaus Michor, Susanne Muhar, and Betarice Bednar (Innsbruck: Studienverlag, 2009), 32–43.

6 Christian Pfister, "Das 1950er Syndrom: Die Epochenschwelle der Mensch-Umwelt-Beziehung zwischen Industriegesellschaft und Konsumgesellschaft," *GALA* 3., no. 2 (1994): 71–90.

In the first decades of the twentieth century, criticism of hydropower projects was limited to isolated considerations from intellectual and academic circles. The construction of dams and storage reservoirs was even perceived as enriching and beautifying the landscape. In the 1950s, nature conservation activists began to oppose power plant projects for the first time. Some spectacular conflicts followed; a new way of thinking about the use of natural resources began. In the 1980s and 1990s, protest movements supported by large groups of the population brought power plant projects on the Danube (Hainburg) and in the Dorfertal in Tyrol to a standstill and in each case opened the way for the development of national parks. The conflicts eventually led to the emergence of new institutions, political parties, and nature conservation tools.<sup>7</sup>

The fifty most powerful storage power stations are currently located in the Alps of central and western Austria. Nearly all of them went into operation between 1950 and 1992. All of the ten most powerful run-of-river power plants are located on the river Danube and were completed before the Hainburg conflict, with the exception of the Freudenu power station (1998).<sup>8</sup>

An analysis of the historical sources shows that the changing debate surrounding hydropower is inextricably tied to the history and identity of the Austrian Republic.

## Nature Conservation in Austria

The first statutory provisions with nature conservation in mind were issued in the second half of the nineteenth century; one of the earliest was the *Reichsforstgesetz* 1852. Alpine tourism that began in that era increased the pressure on Alpine flora, which led scientists to make the first proposals for the establishment of Alpine protected areas. Shortly before the collapse of the Austro-Hungarian Monarchy, plans to establish protected areas became more concrete.

During the First Republic, specialist departments for nature conservation were established in the federal provinces with the assistance of zoologist Günter Schlesinger, one of the leading figures of Austrian nature conservation. During the same period, the highly popular “Papers on Natural

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7 Christina Pichler-Koban and Michael Jungmeier, *Naturschutz, Werte, Wandel: Die Geschichte ausgewählter Schutzgebiete in Deutschland, Österreich und der Schweiz*, Bristol-Schriftenreihe Band 46 (Bern: Haupt, 2015).

8 “Liste österreichischer Kraftwerke,” *de.wikipedia.org*, accessed Jan. 31, 2018, [https://de.wikipedia.org/wiki/Liste\\_%C3%B6sterreichischer\\_Kraftwerke](https://de.wikipedia.org/wiki/Liste_%C3%B6sterreichischer_Kraftwerke).

History and Nature Conservation” (*Blätter für Naturkunde und Naturschutz*) were published. In these papers Schlesinger addressed, among other topics, the atmospheric value of landscape as well as the economic value of nature protection—thoughts that went beyond the pure conservation aspect of nature protection that had prevailed until then.

In the 1950s and 1960s, discussions on the construction of power stations and development projects dominated the Austrian nature conservation scene; the plans for the establishment of a national park remained unfulfilled.

The European Conservation Year proclaimed in 1970 by the Council of Europe was designed as an advertising campaign intended to create awareness for the concerns of nature conservation and environmental protection; one of its effects was that the Governors of the Austrian provinces of Carinthia, Salzburg, and Tyrol made a public commitment to establishing a joint Hohe Tauern National Park. The 1980s saw a number of conflicts about major projects—in many cases focusing on the conflict over the use of rivers and their importance for nature conservation. Many of the sites involved in these conflicts were later turned into national parks.<sup>9</sup>

### A Brief History of Hohe Tauern National Park

Though always sparsely populated, human presence in the Hohe Tauern dates back to pre-Christian times, and traces of it are found along old trade routes across the Alps. Around 250 BC, people settled permanently in the valleys and took their domestic animals up to the mountain pastures to graze. An important source of income until the beginning of the nineteenth century besides agriculture was the mining of Tauern gold.<sup>10</sup> When mining was discontinued, the mountains and rivers remained the most promising assets of this region.

The boom of Alpine tourism began around 1900; the increasing mobility ensured by railways and automobiles instilled wealthy townspeople with a growing desire for travel. Ambitious road construction projects and fashionable hotels were planned in the area around the Grossglockner in particular.<sup>11</sup>

Regions that had so far been considered unreachable suddenly came within reach, and this also made the finite quality of unspoiled nature

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9 Pichler-Koban and Jungmeier, *Naturschutz, Werte, Wandel*.

10 Fritz Gruber, “Der Edelmetallbergbau in Salzburg und Oberkärnten bis zum Beginn des 19. Jahrhunderts,” in *Das Buch vom Tauerngold*, ed. Werner Paar, Wilhelm Günther, and Fritz Gruber (Salzburg: Verlag Anton Pustet, 2006), 193–295.

11 Markus Geserich, *Hotels an der Großglockner Hochalpenstraße: Franz Wallack und das ideale Alpenhotel* (Vienna: Klein Publishing, 2016).

evident. Aware of this finite aspect, the nature conservation movement gained momentum, and soon the Hohe Tauern region was identified as a suitable place for a *Naturschutzpark* (nature conservation park) following the example of American national parks. The first steps were made by *Stuttgarter Verein Naturschutzpark*, which bought land in the Stubachtal and Felbertal valleys, but there were still many years to come before the Hohe Tauern National Park would actually be established. Carinthia started it in 1981; Salzburg (1983) and Tyrol (1993) followed. The intervening and subsequent history has been, and continues to be, eventful through the present day.<sup>12</sup>

Ultimately, a third option opened for the Hohe Tauern area in the early twentieth century: the Hohe Tauern mountains provided ideal conditions for the generation of energy from hydropower, with their abundance of water and favorable effective head. This potential was clearly seen, especially as the Austrian Government attached high priority to the development of “white coal” to reduce the young Republic’s dependency on imported coal.

The three interest groups of tourism, energy industry, and nature conservation tried to assert their respective ideas in the Hohe Tauern area; there was no escaping conflict. The most prominent conflicts are listed below:

The struggle over the Kaprun Tauern power plant: *Allgemeine Elektrizitätsgesellschaft Berlin* (AEG) presented first drafts for a power plant project in 1928; the project was designed to combine the Tauern runoffs of Salzburg, East Tyrol, and Carinthia via sloping channels and tunnels in three large reservoirs in the Kaprun Valley and generate 6600 million kWh of electricity in several power plants. The economic crisis of the 1930s prevented the implementation of these plans. The National Socialists took up the plans again, but failed, despite the deployment of forced labor, because the treasury was empty due to the war. After the end of the Second World War, the Kaprun power plant was finally completed with funds from the Marshall Plan and went into operation in 1955.<sup>13</sup>

The dispute over Krimml: “Austrian League for Nature Conservation (Österreichischer Naturschutzbund, ÖNB) mobilized against Tyrolean Hydropower Corporation’s (*Tiroler Wasserkraftwerke-AG*, TIWAG) plans to use the Krimmler Ache water for the production of energy and called

12 Anton Draxl, *Der Nationalpark Hohe Tauern: Eine österreichische Geschichte. Band 1. Von den Anfängen bis 1979* (Alpine Raumordnung 12) (Innsbruck: OeAV Fachabt. Raumplanung/Naturschutz, 1996); Patrick Kupper and Anna-Katharina Wöbse, ed., *Geschichte des Nationalparks Hohe Tauern* (Innsbruck: Tyrolia, 2013); Pichler-Koban, and Jungmeier, *Naturschutz, Werte, Wandel*.

13 Ute Hasenöhrl, “Naturschutz in der Zwischenkriegszeit (1918–1938),” in *Geschichte des Nationalparks Hohe Tauern*, ed. Patrick Kupper and Anna-Katharina Wöbse (Innsbruck: Tyrolia, 2013), 39–63.

for an Austria-wide petition in 1952. More than 120,000 people signed the petition and brought down the project. The Krimml Waterfalls were declared a natural monument in 1961 and awarded the European Diploma of Protected Areas by the Council of Europe in 1967.<sup>14</sup>

Protests against the Maltatal power station: In order to prevent the energy use of the runoff from the Carinthian Maltatal, the “Gößgraben-Maltatal” was declared a nature conservation area on the initiative of “German Alpine Association” (*Deutscher Alpenverein*, DAV) in 1943. In 1959, the storage power plant Maltatal was declared a preferred hydraulic engineering project, the nature conservation area was dissolved, and a dam was built in the 1970s despite the continued protest of nature conservation associations.<sup>15</sup>

Resistance in the Dorfertal, Tyrol: After many years of tough negotiations concerning a power station project of TIWAG in East Tyrol—with various nature conservation associations supporting both the opponents and the advocates of the power plant—the people of Kals took a clear position and brought about a decision. The majority decided against the project in a referendum and thus paved the way for the establishment of the Hohe Tauern Tirol National Park.<sup>16</sup>

## A Brief History of Donau-Auen National Park

Reference is made here to various accounts of the history of the Danube and its riverscape<sup>17</sup> and the history of the National Park<sup>18</sup> for in-depth studies.

14 Georg Stöger, “Neuanläufe für einen Nationalpark (1949–1970),” in *Geschichte des Nationalparks Hohe Tauern*, ed. Patrick Kupper and Anna-Katharina Wöbse (Innsbruck: Tyrolia, 2013), 93–119.

15 Pichler-Koban and Jungmeier, *Naturschutz, Werte, Wandel*.

16 Roland Würflinger, “Die Etablierung des Nationalparks (1971–1992),” in *Geschichte des Nationalparks Hohe Tauern*, ed. Patrick Kupper, and Anna-Katharina Wöbse (Innsbruck: Tyrolia, 2013), 121–145.

17 Mathias Jungwirth, Gertrud Haidvogel, Severin Hohensinner, Herwig Waidbacher, and Gerald Zauner, *Österreichs Donau: Landschaft – Fisch – Geschichte* (Vienna: Institut für Hydrobiologie und Gewässermanagement, BOKU, 2014); Verena Winiwarther, Martin Schmid, and Gert Dressel, “Looking at half a millennium of co-existence: the Danube in Vienna as socio-natural site,” *Water History* 5 (2013): 101–119.

18 BundNaturschutzinBayern e.V., Gregor Louisoder Umweltstiftung, and Claus Obermeier (eds.), *Der Kampf um die Donauauen: Erfolge und Niederlagen der Naturschutzbewegung* (Munich: oekom, 2015); Christina Pichler-Koban, Norbert Weixlbaumer, Franz Maier, and Michael Jungmeier, “Die österreichische Naturschutzbewegung im Kontext gesellschaftlicher Entwicklungen,” in *Geographischer Jahresbericht aus Österreich – Beiträge zur Humangeographie und Entwicklungsforschung*, vol. LXII and LXIII, ed. Helmut Wohlschlägl (Vienna: Institut für Geographie und Regionalforschung, 2007): 27–78; Pichler-Koban and Jungmeier, *Naturschutz, Werte, Wandel*; Schmid and Veichtlbauer, *Vom Naturschutz zur Ökologiebewegung*.

Until late into the nineteenth century, there were no man-made interventions in the riverbed of the Danube. There was regular flooding. The river regulation of 1870 laid the basis for more intensive use of the landscape. The Lobau floodplain was first protected by law in 1959 when it became included in the green belt of Vienna, the “Viennese Green belt” (*Wiener Wald- und Wiesengürtel*). The Danube wetlands were imperial hunting grounds until the Austro-Hungarian Monarchy collapsed in 1918; from then on, they played an ever more important role for the people of Vienna seeking recreation.

During the Second World War, *Obere* Lobau became an industrial zone, and extensive infrastructure of strategic military importance was developed. The Municipality of Vienna considered introducing a further expansion of the oil terminal in Lobau in 1958, but these plans failed due to the resistance of nature conservationists and the people of Vienna (for further details on the Lobau oil terminal, please refer to the contribution by Ortrun Veichtlbauer in this volume).

The fall of the river Danube along its free-flowing stretch in Austria is significant, and the water volume is substantial, making it attractive for hydro-power energy production. The 1950s saw the construction of a series of run-of-the-river power stations and barrages called the “Golden Stairs”—(*Goldene Treppe*), as the process was called—along the Austrian section of the Danube. Eight barrages had been built to the north of Vienna by 1980; construction of the Hainburg power plant was scheduled to begin in 1984. The resistance to these plans—initially by a few nature conservationists—developed into a conflict that would take hold of Austrian society and bring about a turning point in the democratic policy of the Republic.<sup>19</sup> The Governors of Vienna and Lower Austria celebrated the official opening of Donau-Auen National Park in 1996 at the precise location of these disputes.<sup>20</sup>

## Analysis

Any concept of nature conservation accordingly comprises intrinsic conflicts. This paper draws on changes in conservationists’ selected positions

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19 Bund Naturschutz in Bayern, *Der Kampf um die Donauauen*; Bernhard Natter, “Die ‘Bürger’ versus die ‘Mächtigen’ – Populistischer Protest an den Beispielen Zwentendorf und Hainburg,” in *Populismus in Österreich*, ed. Anton Pelinka (Vienna: Edition Junius, 1987), 151–170; Günther Nennung, and Andreas Huber (ed.), *Die Schlacht der Bäume – Hainburg 1984* (Vienna: hannibal, 1984); Schmid, and Veichtlbauer, *Vom Naturschutz zur Ökologiebewegung*.

20 Pichler-Koban et al. “Die österreichische Naturschutzbewegung,” Pichler-Koban, and Jungmeier, *Naturschutz, Werte, Wandel*.

during the development of two Austrian national parks. The analysis is intended to exemplify the complex conceptual roots of nature conservation and to reveal the conceptions, narratives, and discourses at work in this context. A large-scale study on the historical development of Alpine parks<sup>21</sup> identified different types of conceptual interaction between conservation and other interest groups that figured prominently. The interactions between nature conservation and tourism can, for example, be assigned six conceptions.<sup>22</sup> The following section elaborates on the question whether the same is also true for the interaction between nature conservation and the use of hydropower. The identified conceptions are:

**Fundamental antagonism:** The predominant narrative of this conception draws on the integrity and beauty of nature that gets disturbed and destroyed by any kind of human intervention. Hence, unspoiled nature must be protected against overwhelming human exploitation. Only a few (educated) visitors know how to behave; all others are a permanent and imminent threat to fauna and flora and must consequently be excluded.

**Selective antagonism:** This position claims that natural landscapes are remaining hideaways from everyday life. These landscapes are in danger of being spoiled by technical infrastructures, modern architecture, and noisy mass tourism. This conception was formulated and continues to be advocated by Alpine associations and mountaineering clubs, the early pioneers of Alpine tourism. These were primarily rooted in well-educated, economically well-situated circles of public and academic life, but have continuously broadened their member base throughout the twentieth century. Hence, these actors turned out to be the most influential drivers of a public discussion that opposed infrastructures such as skiing-resorts, cable-cars, hydroelectric plants, and grids in Alpine regions.

**Opportunistic cooperation:** There is no particular narrative in this regard, since the position refers to the concrete discourses and arguments that are used. However, a supposedly strong interest is used to support nature conservationists' positions. For example, it is argued that a project will lead to a loss of opportunities for tourism. This conception is used by different groups, but is mainly rooted in civil society actors. It is hard to distinguish between what is the "honest" conviction and what is already a compromise. Hence, the interpretation of this position is problematic. These opportunistic co-operations are generally limited in time. They are focused on a particular topic but remain fragile and are not bound to either

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21 Pichler-Koban and Jungmeier, *Naturschutz, Werte, Wandel*.

22 Christina Pichler-Koban, and Michael Jungmeier, "Alpine parks between yesterday and tomorrow - a conceptual history of Alpine national parks via tourism in charismatic parks in Austria, Germany and Switzerland," *eco.mont* Vol. 9 (2017): 17-28.

side. The strategy clearly intends to influence public opinion and decision makers and is therefore an instrument of agitation.

**Opportunistic appropriation:** There is no general position in this respect, since the actors use conservationist arguments to support other private or institutional intentions. An example for this is the designation of “special nature reserves” (*Naturschutzgebiete spezieller Ordnung*) in the Third Reich. These were in fact designed to enable exclusive hunting activities for the leading officials of the regime.

**Co-operative development:** this conception is based on the idea that most conflicts between nature conservation and the energy industry can be solved by technical solutions and appropriate design of power stations, dams, and reservoirs. A partnership between the antagonistic groups is a course that enables good solutions to emerge, which satisfy the energy producers and at the same time fulfill conservationist requirements.

**Integrative development:** The representatives of this conception claim to see protected areas in an integrated/holistic manner. Good planning is intended to avoid conflict and take all interests into account.

## Interdependence One: Nature Conservation – Technology

The first line of discourse explored here is dedicated to the relationship between nature conservation and technology as expressed in the positions of opponents and proponents of power plants.

### Hohe Tauern National Park: the Discourse

In the interwar years, the energy sector clearly prevailed over nature and landscape conservation, a fact that was even accepted as an economic necessity by conservationists; they limited their demands to blending technical infrastructure in harmoniously with their surroundings. *Alpenverein* and *Verein Naturschutzpark* feared the failure of the *Naturschutzpark* in Hohen Tauern they yearned for. However, they did not oppose the construction of power plants in Stubachtal. Given the difficult economic situation, they had little chance of success.<sup>23</sup>

Some years later, in the 1930s, *Allgemeine Elektrizitätsgesellschaft* (AEG) considered using the runoffs from the Maltatal. To prevent this use, *Alpenverein* addressed a motion to the Governor of Reichsgau Carinthia to place the Maltatal under protection referring to its “utterly unspoiled

<sup>23</sup> Hasenöhrl, “Naturschutz Zwischenkriegszeit,” 54.

state.”<sup>24</sup> *Alpenverein* was successful in this venture—at least for a time. In 1943, the establishment of a nature conservation area was ordered, and that was subsequently taken over by the Austrian Second Republic. Only in the 1970s was a new attempt by the hydropower industry successful.

In 1938, plans dating back to the interwar years were taken up again, and an overall energy utilization plan for the Hohe Tauern mountains was presented. An application of *Alpen-Elektrowerke* (AEW) for categorization of the infrastructure as “preferred hydro-engineering structure”<sup>25</sup> was quickly approved, with the procedure taking just a few days. The special representative for nature conservation group DAV, Paul Dinkelacker, opposed these plans, claiming they would compromise the national park and “rob it of all rushing and bubbling waters.”<sup>26</sup> The head of the nature conservation department in the Reich Forestry Office, Lutz Heck, countered that, on the contrary, a “new plant worth seeing”<sup>27</sup> would be created. DAV, which was in charge of nature conservation in the Eastern Alps and the national parks to be established there, ultimately had to concede, and the ground-breaking ceremony for construction of the Kaprun power plant was held in 1938. The conservationists admitted that the power plant plans represented a “vital contribution to the entire energy management of the German people,”<sup>28</sup> and consequently advocates of nature conservation should work toward a compromise and intensive cooperation between nature conservation and engineering.

In the official publication on the opening of the upper barrage of the Kaprun Tauern power station in 1955, we read that “the landscape has been changed for the better; an idyllic Alpine lake has replaced the barren bottom of the valley and the destructive rivers.”<sup>29</sup>

Twenty-five years later, Eduard Wallnöfer, Governor of Tyrol and as such a representative of the owners of TIWAG, commented along the same

24 “völligen Unberührtheit:” Hans Bach, “Das Maltatal – das Tal der stürzenden Wasser: Ein 25-jähriger Kampf,” *Jahrbuch des Vereins zum Schutz der Alpenpflanzen und -Tiere* 34, (Munich: Selbstverlag, 1968), Sonderdruck, 8.

25 “bevorzugter Wasserbau:” Ortrun Veichtlbauer, “Großdeutscher Nationalpark im NS (1938–1948),” in *Geschichte des Nationalparks Hohe Tauern*, ed. Patrick Kupper and Anna-Katharina Wöbse (Innsbruck: Tyrolia, 2013), 65–91 (here 80).

26 “aller rauschenden und springenden Wasser:” Veichtlbauer, “Großdeutscher Nationalpark,” 80.

27 “neue sehenswerte Anlagen:” Veichtlbauer, “Großdeutscher Nationalpark,” 80.

28 “lebenswichtiges Werk für den gesamten Energiehaushalt des deutschen Volkes:” Veichtlbauer, “Großdeutscher Nationalpark,” 82.

29 “Die Landschaft wurde gänzlich verändert. Das Bild des toten unfruchtbaren Talbodens mit seinen zerklüfteten Schluchten und zerstörend dahinstürzenden Bächen wurde abgelöst von dem Anblick einer ruhigen Gebirgslandschaft mit einem, die wilden Wasser bändigenden Alpensee, an dessen Ufern sich schüchtern wiedererwachte Vegetation bemerkbar macht:” Johann Götz and Robert Emanovsky, *Festschrift. Die Oberstufe des Tauernkraftwerkes Glockner-Kaprun*, (Zell am See: Tauernkraftwerke A.G., 1955), 54.

lines when he tried to convince the people in East Tyrol of the power plant project in the Dorfertal: “A power plant is an enrichment for any area.”<sup>30</sup>

In the 1950s, the “Institute of Nature Conservation” (*Institut für Naturschutz*), which was related to ÖNB, was to provide the scientific basis for the establishment of a national park in the Hohe Tauern. It took every opportunity to provide technical justifications for the caveats of nature conservationists against various power plant projects.<sup>31</sup> And in the 1970s, it was the umbrella organization of Austrian nature and environmental protection organizations (Österreichische Gesellschaft für Natur- und Umweltschutz, ÖGNU, today known as *Umweltdachverband*) that demanded that the national park (by then promised by the governors) had to be taken into consideration whenever a new power plant project was planned. ÖGNU considered the realization of both plans to be incompatible.<sup>32</sup>

### Hohe Tauern National Park: Identified Conceptions

Discourse surrounding the Hohe Tauern oscillated between the conservation of unspoiled nature (fundamental antagonism), similar to what *Alpenverein* had wished for the Maltatal, and the argument that the value of an area would be enhanced when nature was tamed and a “new landscape worth seeing” was created (opportunistic appropriation); this is the reasoning used by actors who must justify or push through the construction of a power plant. Many also believed that a compromise could be found and a balance between nature and technology created (co-operative development). This final perspective represents the dominant view at the time, which imagined a substantial alignment of interests between nature and society; this view was only renounced in the 1970s, with the turn toward the ecological paradigm.<sup>33</sup>

### Donau-Auen National Park: the Discourse

In 1979, the Lower Austrian *Naturschutzbund* organization first proposed the establishment of a Donau-March-Thaya-Auen National Park.

30 “Ein Kraftwerk ist eine Bereicherung eines Gebietes:” Josef Klaus, “Eröffnungsrede des Herrn Landeshauptmann von Salzburg Dr. Josef Klaus,” *Blätter für Naturkunde und Naturschutz* 37, no. 12 (1951): 193–194.

31 August Meisinger, “Nationalparke – nun auch in Österreich,” *Natur und Land* 36, no. 11 (1950): 185.

32 Chronologie der Aktivitäten der Österreichischen Gesellschaft für Natur und Umweltschutz zum Nationalpark Hohe Tauern, Apr. 5, 1976, Archiv Umweltdachverband, Office Umweltdachverband, Vienna.

33 Schmid, and Veichtlbauer, *Vom Naturschutz zur Ökologiebewegung*, 33, 39.

Taking this into consideration, *Naturschutzbund* suggested building the planned Danube power stations Greifenstein, Regelsbrunn, and Hainburg in the wet instead of dry construction method in order to prevent further reduction of wetlands along the river Danube.<sup>34</sup>

The people planning the power stations along the river Danube urgently advised against leaving free-flowing stretches between the barrages. The bedload in the free-flowing sections of the Danube would accumulate at the upstream dams and then be lacking in the sections downstream of the dams. This would lead to further degradation of the riverbed and ultimately it would turn into a “canyon[,] and the wetlands would become steppe.”<sup>35</sup> As eight barrages had already been built or were under construction north of Vienna by the year 1980, the intention behind this reasoning was to continue construction “to save the Danube.”<sup>36</sup>

In line with this argument, energy industry representatives tried to obtain the approval of Nobel laureate Konrad Lorenz for the construction of a power station at Greifenstein. Lorenz ultimately believed their explanations that after the intervention the wetlands would be more beautiful, and that, due to the tendency of bed erosion, the ecological diversity of the landscape would be richer than it would be if no dams were built. When, after the completion of the structure, the riverscape, contrary to the predictions, had lost its original wetland character, Lorenz became one of the most ardent opponents of any further use of the river Danube for energy production.<sup>37</sup>

At the same time, the renowned zoologist Otto König was not a priori dismissive about the power stations planned along the river Danube. He demanded, of course, that the construction measures would have to account for the sufficient preservation of nature. König coined the term “second-hand habitat”<sup>38</sup> and said that it did not matter to organisms “how a habitat developed as long as it provides the conditions the organism needs to live.”<sup>39</sup> To ensure that as little natural habitat as necessary would

34 “projektierten Donaukraftwerke Greifenstein, Regelsbrunn und Hainburg in Naßbau- und nicht in Trockenbauweise zu errichten, ... um eine weitere Dezimierung der Auegebiete entlang der Donau zu verhindern.” NÖ. Naturschutzbund, “Resolution,” *Natur und Land* 66, no. 1/2 (1980): 59.

35 “zum Canyon und die Au zur Steppe werden:” Bernhard Lötsch, interview with author, July 24, 2012.

36 “die Donau zu retten.” Bernhard Lötsch, interview with author, July 24, 2012.

37 Bernhard Lötsch, interview with author, July 24, 2012.

38 “Lebensraum aus zweiter Hand:” “Otto Koenig (Verhaltensforscher),” Wikipedia, accessed Jan. 31, 2018, [https://de.wikipedia.org/wiki/Otto\\_Koenig\\_\(Verhaltensforscher\)](https://de.wikipedia.org/wiki/Otto_Koenig_(Verhaltensforscher)).

39 “wie ein Lebensraum entstanden ist, solange er nur die Bedingungen erfülle, die der Organismus zum Leben brauche:” “Otto Koenig (Verhaltensforscher),” Wikipedia, accessed Jan. 31, 2018, [https://de.wikipedia.org/wiki/Otto\\_Koenig\\_\(Verhaltensforscher\)](https://de.wikipedia.org/wiki/Otto_Koenig_(Verhaltensforscher)).

be destroyed, he argued, each construction project should be monitored by ecologists.

The start of construction works for the Hainburg project in 1984 was for many power plant opponents an example of the “notion that economy could do without attention to ecological aspects.”<sup>40</sup> Nature would be “treated as an object of unscrupulous exploitation.”<sup>41</sup> The power plant opponents (students, artists, intellectuals) understood the imminent destruction caused by the construction efforts as a “war against Nature, provoked by a State” that believes in the victory of technology over nature.<sup>42</sup>

Even after the end was certain for the Hainburg power project, ecologist Bernd Löttsch and artist Friedensreich Hundertwasser were not convinced that the threat of future power plant projects along the Danube would be contained. They wrote a manifesto calling on people to “free the enslaved nature of the Danube to give it back its beauty and dignity.”<sup>43</sup> Together with the World Wide Fund for Nature (WWF) and with the support of the *Neue Kronen Zeitung* newspaper, they initiated the “Buy Nature’s Freedom!” (*Natur frei kaufen!*) campaign in 1989. More than 120,000 donors followed their appeal and made possible the land purchase of what is now Donau-Auen National Park.

The Donau-Auen National Park was opened in 1996. The managers of the park and environmental protection organizations soon agreed that the erosion of the Danube due to the barrage in its headwaters was a real problem and that the wetlands—which were meant to be protected by establishing the national park—threatened to vanish. The counter measures to be taken are still dividing the factions. The national park managers are of the opinion that the “General Hydro-engineering Project” (*Flussbauliche Gesamtprojekt*, FGP) should make a win-win situation possible: the original state of the river should be restored to benefit both nature conservation and the role of the Danube as a waterway. The majority of the environmental protection organizations, however, are of the opinion that the FGP is a concession to the demands of shipping transport and reject it outright.

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40 “Vorstellung, dass Ökonomie auf ökologische Rücksichtnahme verzichten könnte:” Friedensreich Hundertwasser, “Rede anlässlich der Rückgabe des Großen Österreichischen Staatspreises,” in *Die Schlacht der Bäume – Hainburg 1984*, ed. Günther Nenning and Andreas Huber (Vienna: hannibal, 1984): 115–116.

41 “als Gegenstand bedenkenloser Ausbeutung behandelt:” Hundertwasser, “Rückgabe Staatspreis.”

42 “Krieg gegen die Natur, angestiftet vom Staat, der noch immer an den Endsieg der Technik über die Natur glaubt:” Hundertwasser, “Rückgabe Staatspreis.”

43 “die versklavte Natur der Donau freizukaufen, um ihr Schönheit und Würde zurück zu geben:” Bernhard Löttsch, interview with author, July 24, 2012.

## Donau-Auen National Park: Identified Conceptions

In its first deliberations about the national park, *Naturschutzbund* admitted that it could be possible to design power plant structures in such a way that negative effects were minimized. Otto König assumed that, in the ideal case, an equal habitat could be created; both views are in line with the concept of co-operative development. König's proposal of supplementary ecological planning is state of the art today. Most nature conservationists of his time did not agree with him and accused him of leaning too far to the energy sector, a viewpoint that in turn took over the reasoning of the conservationists, who imagined saving the Danube by building dams (opportunistic appropriation). The power plant opponents—mainly young people of conservative backgrounds, students, scientists, and artists—saw the Danube wetlands at Hainburg as the expression of city dwellers' idea of wild rivers, manifesting the notion of fundamental antagonism. The people occupying the floodplains ignored the fact that the Danube had always been intensively used and that the Hainburg floodplains constitute appropriated nature and not the "last wilderness."<sup>44</sup> The commitment of the national park managers to the FGP added the concept of integrative development. Sound planning and targeted structuring of the river were intended to satisfy varying demands without putting the river system under an excessive burden. This would help establish the exact "technocratic natural management" that caused the opposition of the environmentalist occupiers. The current debate about the use of hydropower sees a similar phenomenon: power plant proponents defend their position by invoking the notion of environmentally friendly (being from renewable energy carriers), clean (compared to fossil raw materials), and safe (compared to nuclear power plants) production of energy. Most nature protection organizations, however, argue against it, following the principle of fundamental antagonism. This is true for both Hohe Tauern and the Danube floodplains.

### Interdependence Two: Nature Conservation – Economy

The second line of the discourse investigates where nature conservation and economic interests meet and where they obstruct each other with regard to the use of hydropower. As the research material included only one example for Donau-Auen National Park, both national parks are covered in the same chapter.

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44 Schmid and Veichtlbauer, *Vom Naturschutz zur Ökologiebewegung*, 41.

## Hohe Tauern and Donau-Auen National Park: the Discourse

In 1904, a committee from the Carinthian Natural History Museum suggested sites that would be worthy of protection as natural monuments. Among those suggested were Möllfall and Jungfernsprung near Heiligenblut (both in the Hohe Tauern National Park area), because these waterfalls would contribute to “making the landscape rich,”<sup>45</sup> but if “their use for power generation purposes” was to be discussed<sup>46</sup> they could “generate more wealth” through this use<sup>47</sup> than by their conservation.

In 1950, official nature conservation organizations read in disbelief about the plans to use the Krimml Waterfalls for power generation: it was incomprehensible why sites of international reputation should be destroyed, and the effects this would have on tourism were incalculable.<sup>48</sup>

One year later, the Governor of Salzburg, Josef Klaus, in his opening speech on the occasion of the “First Austrian Nature Conservation Day” (*Erster Österreichischer Naturschutztag*) commented on these plans: the destruction of the landscape would precipitate a decline in tourism, an important source of income in the province.<sup>49</sup> ÖNB in its journal “Nature and Land” (*Natur und Land*) reported that the construction of power plants at the Krimml Waterfalls would have significant consequences for tourism. The tourism industry would never approve of these plans.<sup>50</sup>

On the same issue “Union of Austrian Alpine Associations” (*Verband alpinere Vereine Österreichs*, VAVÖ), ÖNB, “Zoological-Botanical Association” (*Zoologisch-Botanische Gesellschaft*), and the Austrian Academy of Sciences (Österreichische Akademie der Wissenschaften, ÖAW) warned against the perception of landscape purely in terms of utility, while ignoring the

45 “zur Belebung:” “Erhaltung der Naturdenkmale in Kärnten.” *Carinthia II* 94, (1904): 55–56.

46 “die Verwendung derselben zu Kraftzwecken:” “Erhaltung der Naturdenkmale in Kärnten.”

47 “mehr Wohlstand verbreiten:” “Erhaltung der Naturdenkmale in Kärnten.”

48 “Niemand [würde] ... die Vernichtung zweier Sehenswürdigkeiten von internationaler Berühmtheit und ihre Rückwirkung auf den österreichischen Fremdenverkehr begreifen:” Gustav Wendelberger, “Rettet das Gesäuse! Rettet die Krimmler Fälle!,” *Natur und Land. Blätter für Naturkunde und Naturschutz* 36, no. 9/10 (1950), 145–154.

49 “Eine Zerstörung unseres Landschaftsbildes würde auch eine Zerstörung unseres Fremdenverkehrs, einer wesentlichen Reichtumsquelle des Landes, bedeuten:” Klaus, “Eröffnungsrede Landeshauptmann von Salzburg.”

50 “Errichtung von Kraftwerken an den Krimmler Wasserfällen ... von den Fremdenverkehr so schwer wiegenden Wirkungen begleitet wäre:” Gustav Wendelberger and Lothar Machura, “Resolution des Bundesarbeitsausschusses für Fremdenverkehr,” *Natur und Land* 37, no. 4 (1951): 71.

moral and aesthetic effects and “sacrificing sublime beauty to economic utilitarianism.”<sup>51</sup>

The “Friends of Nature” (*Naturfreunde*) nature association faced a difficult situation in the 1970s and 1980s. Because of its political affinity with the Austrian Socialist Party (SPÖ), it was also close to the energy sector. The energy industry expected *Naturfreunde* to also see the positive aspects of power plant projects, or at least to not oppose them publicly. While *Naturfreunde* demanded that any power plant plans should take the plans of a national park into account,<sup>52</sup> it also expected that the establishment of the national park “would be not incompatible” with the power plant in East Tyrol.<sup>53</sup>

In the Hainburg conflict, the *Naturfreunde* association was expected to represent nature conservation interests and to act in the name of the labor movement, which—with a view toward job creation—took the side of the power plant proponents. In its statements, *Naturfreunde* pointed out that the “unspoiled natural landscape was worthy of protection.”<sup>54</sup> The organization criticized the lack of a reasonable dialogue on the complexity of linking nature conservation, environmental protection, clean energy production, and energy conservation in the Hainburg case.<sup>55</sup> In this context, it saw its calling in “promoting the concerns of nature conservation without conflicting with the interests of the working people.”<sup>56</sup>

## Hohe Tauern and Donau-Auen National Park: Identified Conceptions

As far as the development of the Hohe Tauern region is concerned, the use of hydropower seemed to be the better option than nature conservation

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51 “die uns von der Natur verliehenen Gaben unseres Landes nur vom Nützlichkeitsstandpunkt aus zu betrachten und ihre ethischen und ästhetischen Wirkungen zu unterschätzen ... [und] ... die erhabene Schönheit unseres Landschaftsbildes ... Nutzzwecken zu opfern.” Wendelberger, “Rettet das Gesäuse.”

52 “die Planungsarbeiten für das Kraftwerk Osttirol auf das Nationalparkvorhaben ‘Hohe Tauern’ Bedacht zu nehmen” hätten: Naturfreunde Österreich, “Resolution der Naturfreunde-Österreich zum Kraftwerksprojekt Osttirol,” *Der Naturfreund* 72, no. 4 (1979): 24.

53 “nicht unvereinbar wäre:” Naturfreunde Österreich, “Resolution zur Schaffung des Nationalparks Hohe Tauern,” *Der Naturfreund* 74, no. 4 (1981): 4.

54 “auf die Schutzwürdigkeit unberührter Naturlandschaft:” Manfred Pils, “Nach Hainburg,” *Der Naturfreund* 78, no. 1 (1985): 8–9.

55 “Hainburg-Problem ... nicht ein vernünftiger Dialog über die Komplexhaftigkeit der Verknüpfung von Naturschutz, Umweltschutz, Landschaftsschutz, sauberer Energiegewinnung, Energiesparen geführt würde:” Pils, “Nach Hainburg.”

56 “Naturschutzanliegen voranzutreiben ohne mit wohlverstandenen Interessen der arbeitenden Bevölkerung in Widerspruch zu kommen:” Pils, “Nach Hainburg.”

in 1904. By declaring it a natural monument, especially attractive scenery was to be preserved for tourism. This is the first in a series of examples of the opportunistic cooperation concept that was particularly characterizing for the Hohe Tauern region. Nature conservation and tourism were the opposing sides in numerous conflicts (construction of cableways, development of skiing resorts). There was agreement, however, on one point: both interest groups were against power plant projects in the area of the designated national park and did not shy away from using the reasoning of the respective other side.

VAVÖ's reluctance to "sacrifice the sublime beauty of landscape to economic utilitarianism" is fully in line with selective antagonism, because the touristic use of the region by its members was in their view neither economic utilization nor impairment.

*Naturfreunde* which had to represent greatly differing, if not opposing, interests (nature conservation, energy industry, and labor) tried to find an acceptable way out of its dilemma by referring to co-operative development reasoning.

### Other Interdependencies

Other lines of discourse playing a role in these two parks and in relation to the use of hydropower are the relationship between nature conservation and safety, the rule of law, and democracy—with this list being by no means exhaustive. These lines of discourse are, among other things, closely linked to the change of the political landscape and the development of the green movement in Austria.

### Conclusion

This contribution aired the question of whether the interactions between nature conservation and hydropower display the same concepts identified in earlier contributions on the interaction between nature conservation and other interest groups. The analysis is based on the example of two Austrian national parks, the history of which is closely linked to the use of hydropower in Austria. Two lines of discourse are explored to shed light on the relationship between nature conservation and technology and between nature conservation and economy. The research material offers evidence for six of different concepts: fundamental antagonism, selective antagonism, opportunistic cooperation, opportunistic appropriation,

co-operative development, integrative development. The order of these concepts corresponds to the order of their first appearance. While fundamental antagonism can certainly be rated as the oldest established notion and integrative development as the youngest, their use in the lines of discourse is not subject to chronology. The emergence of a new conception can be connected to particular societal developments and can thus be placed into a historical context. However, different conceptions co-exist simultaneously, and their use is not subject to an expiration date.

Practical nature conservation work is bound to valuations that are usually based on the concepts mentioned above. The generally unreflected coexistence of these concepts may lead to contradictions and ambiguities. Such contradictions also occur in Austria in other social spheres, for example when it comes to the working world or the health care system. In those fields however, the issues are discussed in a much more radical way as they directly affect people. Thus, the pressure of having confrontations and conflicts is much higher than in nature conservation which seemingly does not concern the everyday life.

The more recent concepts presented in this article (co-operative development and integrative development) are more in line with the requirements of a complex democratic society than the older ones. At the same time, they are challenged and put to a test by the older antagonistic concepts.

In Austria, many conservation questions that already have been raised in the past are being discussed and assessed again. An example is the question of either expanding energy production from renewable sources such as hydropower or conserving alpine river landscapes. The arguments reach as far as the current government program that features key words such as “elimination of gold-plating of EU-directives”<sup>57</sup>, “refocusing location policy”<sup>58</sup> or “administrative simplification”<sup>59</sup>. The issue became a hot topic and makes continuing discussions appear sensible. The knowledge about its history can help to better understand and solve conflict situations.

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57 “Gold-Plating gegenüber EU-Vorgaben beseitigen,” Regierungsprogramm 2017–2022 der Neuen Volkspartei Freiheitlichen Partei Österreich, “Zusammen. Für unser Österreich,” (Vienna: Bundeskanzleramt, 2018): 156.

58 “Neuorientierung der Standortpolitik,” Ibid. 175.

59 “Verwaltungsvereinfachung,” Ibid. 172.



# Non-Topical Essay

