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Between the Land and the Sea
- Ecoguide to discover the transitional waters
of Albania

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- Ecoguide to discover the transitional waters of Albania

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Cover inspired from the logo of Fish and Wildlife Associates, Inc., Whittier, North Carolina, USA, with photos: Front: *Orchis albanica* (= *Anacamptis morio* subsp. *caucasica*) in Semani area; wooden pedestrian bridge, leading to the Monastery of Saint Mary, and cypress forest in Zverneci Island, Narta Lagoon, Vlora). Back: Colony of the American Flamingo (*Phoenicopterus ruber*) in the Narta lagoon (Vlora) in July 2012.

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Preface of the editorial group

Many European water bodies, including lakes, rivers and coastal ecosystems, are damaged by eutrophication, adversely impacted by organic pollution, influenced by intense land use in their catchments and affected by degradation of their habitats. Anthropogenic activity is a major contributor to loss of important ecosystem functions and aquatic biodiversity has been greatly diminished in the relatively recent past. As the demand for clean drinking water in line with growing populations will be an on-going challenge, many countries are targeting good ecological status of their lakes, rivers and coastal ecosystems as a priority. In a world that is increasingly altered by human activities, understanding the consequences of changes in biodiversity and ecosystem functioning is especially relevant. Aquatic systems are among the most endangered ecosystems in the world. Besides species numeracy and diversity, other aspects of biodiversity such as the threat to species level and trophic status need to be considered.

Of special ecological interest are transitional waters. According to the EU Water Framework Directive (WFD) 2000/60/EC, these are defined as “*bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows*” (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0060:EN:HTML>). Similarly the recent project WISER (*Water bodies in Europe: Integrative Systems to assess Ecological status and Recovery*) gives the definition “*Transitional waters are those waters between the land and the sea and include fjords, estuaries, lagoons, deltas and rias. They often encompass river mouths and so show the transition from freshwater to marine conditions. Depending on the tidal influence from coastal waters, but also on the freshwater influence from upstream, transitional waters are often characterized by frequently changing salinity*” (<http://www.wiser.eu/background/transitional-waters/>).

Albania is a coastal country, and about one third of the territory is lowland, most of it bordering on the sea. Much of the coastal area is potentially marshy with a transitional character. Despite the large drainage and reclamation of wetlands in the 1960s, there still exist about 400 km² of transitional wetlands along the coastline. They all stand out for their richness of habitats for flora and fauna, as refuges for fish and for overwintering of migratory water birds, of which some are globally threatened. The coastal zone is also significant for recreation and tourism and provides most important shelters and centers for fishing and aquaculture.

About 30% of the surface of the Albanian protected areas belong to the coastal zone (see Tabs. 2-15 and 5-4), where about 950 km² are transitional wetlands or related areas. Three large transitional areas are Wetlands of International Importance (Ramsar): Butrinti-Çuka-Stillo (Saranda), Karavasta-Divjaka (Lushnja) and Lake Shkodra-River Buna-Velipoja (Shkodra). Furthermore the Butrinti and the Divjaka-Karavasta complex are National Parks. Five sites have been denoted as Managed Nature Reserves / Natural Parks: Kune-Vaini-Tale (Lezha), Pishe Poro (Fieri), Rreza-Karaburuni Peninsula (Vlora), Patogu-Fushe Kuqe-Ishmi (Kurbini) and Rrushkulli (Durrësi). The River Buna-Velipoja and the delta of the River Vjosa-Narta lagoon (Vlora) have been declared as Protected Landscape Areas. The ancient town of Butrinti belongs to the World Heritage Convention (UNESCO). Two sites, Divjaka and Kune, are registered as Specially Protected Areas and Biological Diversity Sites in the Mediterranean (Barcelona Convention).

In 2008, a group of biologists from the University of Tirana comprised of experts associated with Albanian aquatic habitats (Miho *et al.*, 2005, Miho *et al.*, 2009) started to compile this first monograph entitled '*Between the Land and the Sea - Ecoguide to discover the transitional waters of Albania*'. This manuscript, which was supported by the RiverNet Project - INTERREG IIIA, Salento University, Italy, was intended to be part of a series of related Eco-guides for the Adriatic area.

In the present edition the original manuscript has been completely revised and updated, and the iconographic information enlarged. Moreover, an index of geographic and scientific names has been added.

The publication will help interested persons to become acquainted with the Albanian coastal regions and their nature values, fully covering the coast from the border to Montenegro to the one towards Greece. It brings together the most important physico-geographical, hydrological and biological data of the major transitional sites along the coast, from North to South. Each chapter starts with a brief summary, following then with: 1. How to reach the area; 2. About the most important sites; 3. Physico-geographical characteristics; 4. Description of the most important habitats; 5 Biodiversity - flora, vegetation and fauna.

The book aims to gain a better knowledge of the transitional habitats along the whole Albanian coastline, to illustrate past and future changes and to describe the present human impact. More than 20 maps depict the most recent situation, enlarged also with more than 100 tables and more than 20 graphs. More than 600 photos from the visible macroscopic world to the hidden microscopic biota, original and novel, illustrate the facts, biological species and facilitate the reading. Additional information is given about the possibilities to visit the sites with useful and practical information. The text includes also supplementary explanations about nearby archaeological, historic and cultural points of interest that are located within or close to each area. To avoid confusion that derives from the declination of the nouns in the Albanian language the geographical Albanian names are all given in their definite form, special characters in topographical names have been omitted to facilitate the pronouncing in English.

The Eco-guide is intended to be an essential source of information for advanced master students with a curriculum focused on environmental issues in subjects like biodiversity, aquatic ecology or biological monitoring. It is hoped to be also a handbook or field guide for PhD students in Albania, as well as for other environmental experts and foreign visitors loving nature.

The authors aim to stimulate the interest of younger generations, especially students of environmental disciplines, to provide guidance on ecology and biodiversity and to enable them to appreciate natural values. The authors also hope that the publication will strengthen the awareness of the many responsible persons and authorities at local, national, international, governmental and nongovernmental level to enable them to better manage ecological sites, to restore and rehabilitate areas adversely affected by earlier misuse and to protect and maintain their surrounding ecological resources. This publication is also important at international level, to enable classification of the ecological status of the Albanian coastal waters for comparison with the status of transitional waters of other countries bordering the Adriatic and the Ionian Seas.

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Despite the great efforts to put together a huge amount of information and data which have been collected carefully from different and often fragmented sources, the authors are aware of the need to cover specific ecological and environmental facets more thoroughly. Some aspects may not have been considered at all or may not be adequately discussed. The authors are grateful for comments and suggestions that may aim to improve the topic in future.

For the editing team
Reinhard Bachofen

1. Albania - general information

Albania is a small country with a total surface of about 28'748 km², located in the Western part of the Balkan Peninsula in South-Eastern Europe (Fig. 1-1). It borders to Montenegro, Kosovo, Macedonia and Greece, and joins the Adriatic and the Ionian Sea.



Figure 1-1: Satellite map of Albania, indicating the political borders with the main check points, prefectures, towns and national roads (<http://maps.google.com/maps>, *modified*).

About 70% of the territory are mountainous with an average altitude of more than 700 m (Fig. 2-1); the highest peak, the Korabi Mountain in the Eastern part (Dibra district) reaches 2'753 m a.s.l. The main lowland extends in the Western part along the Adriatic coast; the most important populated centers are located here (Fig. 14-1), including Tirana town, the capital with more than 760'000 inhabitants.

The Albanian population has been estimated in 2011 to comprise 2.8 million inhabitants, which decreased by 8% in the last two decades; ethnically, it is homogenous with only few minorities. About 53.5% of the population lives now in urban areas and 46.5% in rural areas; this structure has been strongly changed when compared to 35% of urban population before 1989, before the changes towards the market economy had started. The principal language is Albanian with two dialects, 'toske', the official language, covering the part south of the Shkumbini River, and 'gege', in the part north of the Shkumbini and in Kosovo. The Albanian language belongs to Indo-European languages, but without a direct ancestry to any currently used language.

The greatest part of the population belongs to the Muslim religion (56.7%), the remaining part is divided between Christian Orthodox (6.75%), Catholic (10%) and Bektashi order (2%). As the country experienced a despotic regime repressing religious activities after the Second World War for more than four decades, it is estimated that today only 30-40% of Albanians practice religion actively.

Archaeological records witness that Albania has been inhabited since the Palaeolithic (*Stone* period); the most ancient settlements have been found in the Gajtani Cave (Shkodra district) and also in Tirana, Konispoli and Saranda. *Cyclopean masonry* remains occur in some settlements of the Gjirokastra district; walls of that period are also found in Gradishti (on the Vjosa River) and in Durrresi town. Albanians are the most probable successors of the *Illyrians*, who in ancient times inhabited almost the whole Western part of the Balkan Peninsula. Constantly surrounded by powerful nations, Albania had always a grim history; archaeological traces distributed over the territory illustrate Greek, Roman, Byzantine and Ottoman occupations.

In the Albanian history the period of Gjergj Kastrioti (*Skanderbeg* 1405-1468), has to be emphasized. Skanderbeg united the country in its resistance against the Ottoman occupation. During the years 1443-68, he curbed the Turkish attacks, defending the freedom of his country and that of the European neighbors.

Albania is the Latin Medieval name; during the Middle Age the country was called *Arber*; from the 16th century on, the name *Shqipëri* (*Country of Eagles*) was used, symbolized by the black eagle with two heads in the red emblem and inherited from the Skanderbeg period.

Albania remained under Ottoman control for about five centuries. The independence from the Ottoman Empire was declared in Vlora on November 28th, 1912; the first Albanian state in modern history was established. After the decay of the 45 year old communist regime in 1991, Albania was one of the poorest countries in Europe. Gradually the country started to reestablish a market economy. Despite the difficulties in the transition encountered before 2000, the economy is strongly recovering with a modern and multi-faceted growth. The annual growth rate is high compared to other countries of South-Eastern Europe. The Gross Domestic Product (GDP) was estimated in 2011 to be 24'910 billion US\$, equivalent to 7'741 US\$ per capita, shared mainly between services, agriculture and industry. The most important agricultural products are wheat, maize, potatoes, vegetables, fruits, sugar beets, grapes, meat and dairy products. Tourism is gaining a fair share of Albania's GDP with numbers of visitors growing every year. Industrial activity is focused on food, textiles and clothes, wood processing, refining of petrol, cement production, chemicals, mining and the production of important metals as well as on the production of electrical energy. Today all required goods from industry and agriculture are available on the market.

Albania is politically a Parliamentary Republic where most of the deputies in the Popular Convent are representatives of two main political parties, the Democratic Party, in power since 2005, and the Socialist Party, in opposition. They run the country in turn often in coalition with smaller parties of the right or left spectrum.

Albania has played an important role in mitigation of inter-ethnic tensions in the Balkan region. The country received an invitation to join the NATO military alliance in April 2008 and is robustly seeking EU membership.

Albania is not only of unique in terms of its physico-geography, but it is also an ethnic and cultural entity, outstanding in the whole Mediterranean area. The country terrain is the aggregate of many contrasts with high mountain peaks and deep valleys. A natural mosaic and diversity coexists to the ethnographical richness of an ancient people. The sounds of the *cule* and the polyphonic *iso* in the South are mixed with the sounds of the *çifteli* and the *lahute* in the North, performers of the life and joy of the vital Albanian people. Ancient castles are plentiful in the country, as well as the bunkers from the 2nd half of the last century, both are witnesses of the turbulences and endless struggles for survival of the nation.

Natural values have attracted the attention of foreign visitors since the ancient times. Famous visitors and poets in the antiquity have written about fertile land, rich pastures and many human settlements in the province of Epirus and of other Illyrian tribes. They describe subterranean resources and the rich flora and fauna present. The rivers are often mentioned, such as the Vjosa (*Aosa, Aous, Aia, Ana*) '*that flows in a narrow valley through two mountains*', the Buna (*Buena, Bojana, Barbana, La Baggiona*) '*flowing from Labeat's Lake (today Shkodra Lake) below the legendary Rozafa Castle*' (Titus Livius and Plinius - the elder); mountains are mentioned, such as the Tomorri (*Tomarum, Talar, Tomar, Tmar*) '*with hundred springs that gurgle in its foot*' (Plinius).

The natural beauty has also inspired Albanian artists during the Renaissance. The text '*you Albanian mountains and you tall oaks ...*' of our famous poet Naim Frasheri (1843-1900) illustrates a poetic exaltation of the reality.

1.1. Tirana Capital - the most important gateway to Albania

For many visitors, the town of Tirana is the first contact with the country before starting a journey to the wetland sites along the coastline or to the mountain regions. Tirana is situated in central Albania.

The Airport (Mother Teresa in Rinas) is the only one in Albania and is about 20 km from Tirana. Regular busses link Tirana daily with urban centers within Albania, like Durrresi, Shkodra, Kukesi, Pogradeci, Korça, Vlora, Gjirokastra and Saranda, as well as outside the country with Prishtina (Kosovo), Skopje and Tetovo (Macedonia), Athens and Thessaloniki (Greece). Furthermore, Durrresi, Fieri, Vlora, Shkodra and Pogradeci are also linked to Tirana by railway.

The oldest discovery in Tirana town is a Roman house, later transformed into an aisle less church with a mosaic-floor, dating back to the 3rd century AD. A castle possibly called *Tirkan* or *Theranda* whose ruins are found along Murat Toptani Street, was built by the Emperor Justinian in 520 AD and restored by Ahmed Pasha Toptani in the 18th century. In 1614, Sulejman Pasha, a local ruler established the Ottoman town with a mosque (Fig. 1-3), a commercial center, and a hammam (Turkish sauna). The town was located along caravan routes and grew rapidly in importance until the early 19th century, when it was declared the Capital of Albania. After the 2nd World War, Tirana became the most important and dynamic center of Albania (Fig. 1-2), not only with regard to administration and industry, but also regarding artistic, cultural and scientific aspects.



Figure 1-2: The Skenderbeg Square at the 100th anniversary of the country's independence from the Ottoman Empire (Photo: A. Miho).



After economic changes in 1991, Tirana underwent a dramatic transformation; its population, as a metropolitan area, has grown rapidly from about 206,000 in 1984 to more than 760'000 inhabitants in 2011. Life in Tirana is often very chaotic and noisy and exhibits extreme contrasts, however, it is attractive for many visitors.

A walk in the city around the Skanderbeg Square (Fig. 1-2) impresses with the most representative buildings of the Capital city (Fig. 1-3). Tirana is situated at the foot of Dajti Mountain with the Dajti National Park and the Dajti terrace (Fig. 1-4), a fragment of an old sea terrace formed by the Helvetian sea. The terrace allows a wonderful view on Tirana (see Fig. 8-7).

Details on Tirana town and its environment have been obtained from one of the many available travel guides.

1.2. How to reach Albania

=> by air through Tirana Airport Mother Teresa in Rinas.

=> by sea through the ports of Durrësi, Vlora and Saranda.

=> by rail: from Montenegro by the Podgorica / Shkodra railway.

=> overland:

-from Montenegro by Murriqani / Sukobin, Hani i Hotit / Bozhaj.

-from Kosovo by Qafe Morina / Gjakova, Qafe Prushi / Gjakova, Morina / Vermica.

-from Macedonia by Bllate / Blato, Qafe Thana / afasan, Tushemishti / Sveti Naum, Gorica / Stenje.

-from Greece by Kapshtica / Krystallopigi, Tri Urat / Melissopetra, Kakavia / Ktismata, Qafe Bota / Sagiada (Mavromati).

« « **Figure 1-3:** Historical monuments in Tirana Capital: **1:** Monument of George Kastrioti, Skanderbeg (1968); **2:** Bridge of Tabakeve (XVIII century); **3:** Kapllan Pasha Tomb (1814); **4:** Clock Tower (1830); **5:** Et'hem Bey Mosque (1823); **6:** National Museum of History (1982) (Photos: A. Miho).



Figure 1-4: 1: Dajti National Park; note the forest of the beech belt; 2: Dajti NP Information Center; 3: Students of Biology, Tirana University, during a botanical field trip in Dajti NP (Photos: A. Miho).