

## Ideas for tourism-oriented public transport in national parks and biosphere reserve regions based on touristic nodes

Karen Ziener<sup>1</sup>

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Although an increasing number of projects dealing with environmentally friendly travel in tourism destinations like shuttle bus services in ski resorts, car-free tourism resorts, special hikers' or bikers' buses and regional mobility centres, the problems of visitor mobility and the individual motorised traffic in recreational and protected areas are a long way from being solved. Day trips to tourist attraction are especially spatially and temporally concentrated and implicate conflicts in the involved areas. On the regional level, public transport does not offer a real alternative to the car. Bus services and timetables are mostly focused on providing transport for pupils and maybe on commuters, but they don't meet the requirements of tourists and one-day visitors. On the other hand, the low utilisation of buses encourages neither shorter intervals and longer service hours nor an enlargement of the route network; consequently a vicious circle arises and the situation will deteriorate further. A tourism-oriented public transport can be developed only in interaction of supply and demand and is firstly limited to selected lines.

One approach, therefore, is the concept of touristic nodes (Ziener 2003). Touristic nodes are all places with tourist facilities, regular performances and events, which were used by tourists and local recreationists (at least seasonally). Thereby only big, middle and small touristic nodes are distinguished. The graduation of touristic nodes is the result of a complex valuation (see Table 1). The first step is a preliminary graduation of settlements based on the tourist facilities and regular offers. Additionally, the big and middle nodes are estimated through tourist demand such as overnight stays and visitor numbers as well as the intraregional tourist function. By means of combining qualitative and quantitative valuations, ordinal scales and prescribed intervals, shortcomings of touristic data can be handled. So the big and middle touristic nodes include also one-day visitors as well as local recreationists and are relative robust in short-term changes; regular updating is necessary for border cases. The touristic nodes are the source and/or destination areas of tourist activities, but the tourist flows between the nodes can only be estimated by means of traffic counting in combination with tourist surveys as well as expert interviews.

The development of a tourism-oriented public transport is based on an analysis of the touristic structure of the national park biosphere reserve and its surrounding, represented by big and middle touristic nodes. The two main questions are: Which relations between nodes are relevant for one-day tourists and holidaymakers? And, how should the public transport system in this region be organised? The analysis of different regions has shown that the spatio-structural and organisational preconditions for a tourism-oriented public transport vary from region to region. The situation on Rügen Island is very suitable because all big nodes and half of the middle nodes concentrate along the eastern coast from Thiessow in the South-East to Kap Arkona in the North of the island. Along this line the big Baltic Sea Spas, large beach areas, Sassnitz Ferry Port, South-East Rügen Biosphere Reserve and last but not least the National Park Jasmund are located. There exists a potential to create a continuous bus line between this tourist centres and destinations for outings with a higher frequency. For a few years the Rügen public transport company has increased the frequency of buses between Bergen, Sassnitz and Göhren only (IVV Berlin, IVV Aachen & BDC Dorsch Consult 2008). In the Nockberge region the situation is quite different. Big and middle touristic nodes are concentrated in the surrounding of the National Park Nockberge and on the northern shore of the Lake Millstatt. The regional buses operate from Villach and Feldkirchen along the valleys. As an additional offer in the summer holiday season, some hikers' buses run from the tourist centres in the surrounding valleys to the hiking areas in the mountains

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<sup>1</sup> self-employed, Sponheimer Str.2, 9020 Klagenfurt, Austria, [kziener@web.de](mailto:kziener@web.de)

and along the Nockalm Road through the National Park, but only one or two times a day and in some circumstances, one day per week.

Table 1 The criteria for the Graduation of Touristic Nodes (Ziener 2003, p. 170 annex, modified)

	Big nodes	Middle nodes	Small nodes
Characteristics	Big tourist centres and/or destinations for outings in the region	Average and expected supply in the region	Only a few touristic offers
Accommodation	Big to very big capacity (>1.000 beds) and varied options	Middle to big capacity (250-1.000 beds) and different options	Low or no capacity (<250 beds), mostly only private rooms, apartments or single hotels/guesthouses
Recreation and leisure facilities	Varied facilities and regular offers (specialisation is possible) and/or typical regional or supraregional attractions of cultural landscape, specific tourist or recreational offers	Regional broadness and/or deepness of facilities and regular offers and/or typical regional attractions of cultural landscape, specific tourist or recreational offers	Few facilities or regular offers and/or attractive landscape Minimum requirement: one gastronomic or other facility or regular offers in the season
Function within destination	Main tourist centre and/or destination for outings in the region	Basic framework of tourism in the region	Small tourism places or single facilities, destination for outings, supplemental offering in the region
Tourist demand	Mostly high to very high absolute and relative visitor numbers probed by counting and/or surveys	Partly overnight stays and visitor numbers, proved by counting or questioning or at least observable	Rather not proved by overnight stays, only individual visitor numbers, partly observable

Different surveys have shown that holidaymakers would especially leave the car behind and use public transport. Essential preconditions for this is a better and cheaper public transport, for instance shorter intervals, better connections between buses and trains, better weekend services and later buses (e.g. Ziener 2001). A consequent tourism-oriented public transport concept based on the touristic nodes and the outing interests of tourists will bring the specific requirements of holidaymakers and one-day visitors to the public transport. The implementation in and around protected areas needs a corresponding demand and a multi-level marketing in a close cooperation between public transportation companies, tourism, municipalities and the management of protected areas.

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