Greenways: a sustainable leisure experience concept for both communities and tourists.

1. Introduction

Trails and greenways are terms used for routes reserved for non-motorized forms of transport: cycling, walking, horse-riding, etc. In many cases, these are disused rail lines that have been reconverted for recreational and leisure purposes (Sideralis & Moore, 1995). Trails come in a tremendous variety of shapes and forms (Lortet, 1998). At the most basic level, any linear corridor that provides non-motorized access for recreation is a trail. They can be called backcountry trails, recreational greenways, greenways trails, rail-trails, multi-use trails, bike trails or recreational paths (Moore & Ross, 1998).

Greenways have experienced significant growth in recent years, particularly in the United States (Siderelis & Moore, 1995), Quebec (Archambault et al., 1997), the United Kingdom (Cope et al. 1998), France (Bonduelle, 2006) and Spain (Fundación de los Ferrocarriles Españoles, 1997). There has been a progressive abandonment of some railways in most countries, in part because of competition from cars and trucks, sometimes because of changes in local economies. Abandoned rail corridors are optimal for conversion into recreational trails because:

- The land is well prepared and drained (Turco et al. 2008).
- The gentle curves and mild slopes make the trail fit for all ages and abilities.
- The infrastructure built by the railway companies provides opportunities for historic building conservation and interpretation.

- The connection of communities over hundreds of kilometres provides a continuous recreational network which has huge potential for safe off road cycle tourism.

Although this paper concerns greenways using abandoned rail lines in Spain, it is important to also note at this point the pioneering work carried out on greenway / trail creation in the USA by the Rails to Trails Conservancy (www.railstotrails.org). The Conservancy is a non-profit organization whose mission it is to create a nationwide network of trails from former rail lines and connecting corridors to build healthier places for healthier people. It has more than 100,000 members and supporters, and works with 15,000 miles of rail-trail throughout the USA.

A second explanation for the increase in kilometres of greenway can be found in the significant benefits they represent (Moore & Ross, 1998):

- Healthy living and outdoor recreation: walking for pleasure is the most popular outdoor recreation activity in many countries. Trails and greenways provide people living in rural, urban and suburban areas with a safe, inexpensive avenue for regular physical activity, and are particularly appealing to those with active life styles (Gobster, 2005). Trails can also help to improve health and fitness (Martin-Diener 2006), provide an opportunity for relaxation and family togetherness, and increase awareness of nature. Not only does the availability of this type of resource close to home increase the likelihood of physical activity (Kaczynski & Henderson, 2007), but the benefits of physical activity are also reported to be higher in a natural environment (Hartig, 2006). Overall, the health implications of greenways are particularly relevant in many modern societies where a large

proportion of the population is physically inactive, with a strong risk factor for many diseases.

- Alternative transportation: people usually travel along trails by bicycle or on foot, saving money for regular users and increasing mobility for people with less money, whilst the reduction in car usage reduces the carbon footprint of trail users (Clarke, 1996; Dekoster & Schollaert, 1999).Greenways are often accessed by other means of transport, however, and so the reduction in pollution may therefore be lower than that stated.

- Economic benefits for communities en route: trail users spend money that boosts local economies through both direct and indirect impacts (Cope et al. 1998; Lumsdon, 2006; Moore & Ross, 1998; Turco et al., 1998), increasing nearby private property values (Nicholls & Crompton, 2005) and consequently raising tax revenue. Trails also generate a consumer surplus for their users, as demonstrated by economic valuation methods (Siderelis & Moore, 1995) and witnessed in the savings users make by not using alternative paid sports and recreational facilities. Even non-users generally attach an economic value to the sheer existence of greenways (Lindsey & Gerrit, 1999), although it should be noted that in some instances local residents may experience inconveniences deriving from a high volume of visitors (noise, illicit parking, etc.). And last but not least in economic terms, increased physical activity can lower health care costs on a nationwide level (Martin et al. 2001).

- Environmental benefits: greenways protect important habitat from land development and provide corridors for people and wildlife. They also have a less damaging impact on air and water quality than other forms of tourism (Moore & Ross, 1998), and provide opportunities for observing wildlife. It should be noted,

however, that greenways may also have a number of negative effects on wildlife (see Lindsay et al., 2008 and references therein).

- A sense of place: trails and greenways can improve the quality and enhance the character of communities (Clarke, 1996). They have the power to connect users to their heritage by preserving historic places, buildings and artefacts and by providing access to them (Kelly, 2006), including historical bridges, tunnels and stations. They provide friendly places to meet and socialize with neighbours and can be a source of neighbourhood, community, and regional pride. Trails and greenways have been described in the USA as becoming the new "front porches" of many communities (Moore & Ross, 1998, p. 3).

Given the many benefits that can arise from greenway creation it is also important to note some possible problems. Some abandoned rail routes do not pass close to communities; some have been sold off to many private owners following rail service closure; some stretches are now occupied by roads and motorways; there can in some cases be legal and financial problems in creating ownership and management bodies for trails and greenways.

The recovery of lost rail and other routes by creating greenways over the last 20 years has produced approximately 1,700 km of routes around Spain (the so-called *Vías Verdes*). Of these, 106 km of routes link the Pyrenees with the Mediterranean, crossing areas in Girona Province (Spain's most north-eastern province, situated between France and the Mediterranean Sea), which has outstanding scenic, historical and cultural value. The history of greenways in Girona dates back to the 1990s with the recovery and adaptation of the 19th century narrow gauge rail network, originally built to provide access to ports from the interior. The prioritization of road transport led to the closure and subsequent abandonment of these rail tracks in the 1950s. The

Girona greenways are divided into three stretches and named to reflect their historical background. (Figure 1).

- The *Iron and Coal Route* (12 kilometres) connects the municipalities of Ripoll, Sant Joan de les Abadesses and Ogassa. This route is the legacy of the industrial past in the El Ripollès region, a time when coal mining in the mountains of Ogassa and Surroca created the need to construct a railway for transporting the minerals mined there.

- *The Olot-Girona Narrow Gauge Railway Route* (57 kilometres) links the municipalities in the interior of the province and the provincial capital, Girona, passing through the natural resources of the volcanic area close to the town of Olot, Hostoles Castle, the towns of Anglès and Sant Feliu de Pallerols.

- The *Sant Feliu de Guíxols-Girona Narrow Gauge Railway Route* (39.7 kilometres) connects the port of Sant Feliu de Guíxols and the cork-producing towns of Cassà de la Selva and Llagostera with Girona city. This stretch of greenway is characterized by even gentler slopes and bends than the other two stretches, thus facilitating access for all types of public.

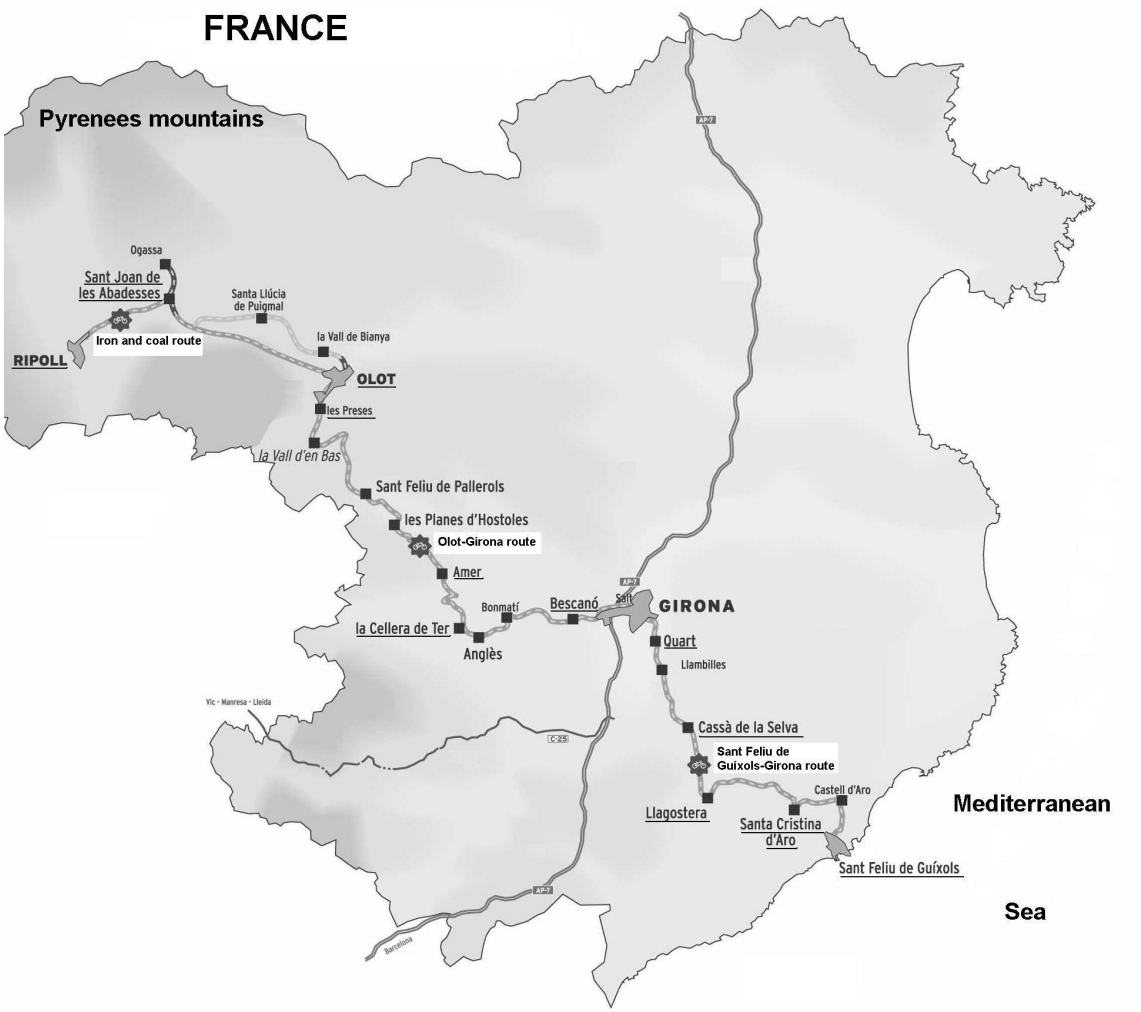

Figure 1. The greenway route studied in this article. Locations where data were collected are underlined. Major urban areas are Girona, Ripoll, Olot, and Sant Feliu de Guíxols

Despite the potential value of greenways for tourism (Bonduelle, 2006), it is a subject area that has remained relatively unstudied, with little in the academic tourism literature. Most of the studies quoted in this introduction are either unpublished, or approach greenways from the point of view of sports, public health, urban leisure, or town planning. Some notable exceptions are the studies by Cope et al., (1998), Downward et al. (2009), and Ritchie (1998). And, given the multiple values mentioned above, a greenway has purposes above and beyond tourism. It is a type of tourist infrastructure that has numerous positive effects on the community it passes

through (Clarke, 1996, Turco et al., 1998): the tourism impacts literature has, however, paid little attention to greenways.

What is more, the scarce literature that has administered questionnaires to users of greenways does not provide details regarding the sampling method used, which leads us to believe that non-random convenience samples were used. Further, on-site user surveys rarely give all population members the same probability of being interviewed, which results in endogenous stratification and can bias the estimates of any characteristic that is correlated with the probability of being interviewed. This problem can easily be solved by means of weighting (see, for instance, Meisner & Wang, 2008).

The purpose of this article is to identify and describe tourist and non-tourist profiles for greenway users, to study their perception of the greenway and to propose a series of measures for improving greenway management and adaptation to different user profiles, in particular tourist users.

2. Methodology

Several meetings were held between the Girona Greenways Consortium, the body responsible for greenway management, and the authors to define the variables to be measured. The questionnaire was compiled using the methodology recommended by Converse and Presser (1986) and Fowler (1995), and includes, amongst other aspects:

- How respondents are travelling on the greenway (walking, running, by bicycle or by wheelchair) and whether they had accessed it by a motorized means of transport.

- The length of their trip along the greenway (direct questions on intended time of travel and on points of departure and destination, from which kilometric distance was computed).
- The sources from which respondents had found out about the greenway (closed multiple choice question).
- The use of services along or surrounding the greenway (closed multiple choice question) and the approximate expenditure per person on each of the services (numeric, in euro).
- Reasons for using the greenway (closed multiple choice question).
- Frequency of use on weekdays, weekends and during holidays (three closed single choice questions).
- What they like most about the greenway and what they would improve about it (two open questions).
- Their evaluation of different aspects of the greenway using a scale from 1 to 5, where 1 indicates “very negative assessment/completely dissatisfied” and 5 “very positive assessment/completely satisfied”.
- The size of the group travelling together.
- Age, gender.
- Place of residence.

In August 2005, a pilot study was conducted with a sample of 50 users following the usual recommendations found in the literature (Converse & Presser, 1986; Fowler, 1995; Groves et al., 2004). This pilot study recommended some small modifications, which led to a definitive version in Catalan and Spanish, the two official languages of

the region the greenway passes through. The questionnaire was translated into English, French and German. The translations were then retranslated back into Catalan by a second translator in order to confirm the functional equivalence between the original and retranslated versions (Behling & Law, 2000) and make minor adjustments where needed.

The questionnaire was either administered in person by an interviewer or self-administered by respondents (their choice) in order to maximize response rates. This constitutes an example of mixed-mode data collection (Groves et al, 2004, pp.162-165), the use of which is increasing in instances where different modes have different costs, or response rates, as in our case. As an incentive, respondents were given a gift of a pen bearing the Girona University logo. The data were gathered between October 2005 and September 2006.

By combining:

- Twelve months of the year (holiday periods of July, August and Easter were oversampled by factor 2).
- Four 2-hour daily intervals (in winter this covers nearly all daylight hours, in summer, the extremely hot period around noon was omitted).
- Two types of day (classified into weekday and weekend).
- Twelve points spaced out along the greenway (6 in or around urban areas and 6 in rural areas, as suggested by Lumsdon et al., 2004. See Figure 1).

we obtained 1,152 feasible data collection times and places, of which 180 were selected in a similar way to how clusters are selected in a two-stage cluster sampling design.

A systematic sampling method was used within each cluster. The first user encountered every 15 minutes was interviewed (8 users per cluster). The planned sample size was thus 1,440.

Of the 1,440 anticipated questionnaires, it was possible to conduct 1,261 (the rest correspond to clusters with very few trips, where it was not possible to administer all 8 questionnaires). In order to obtain the 1,261 questionnaires, 1,477 users were approached, equivalent to a response rate of 85.3%, which can be considered high.

The sampling design leads to a representative sample of greenway trips, albeit with unequal selection probabilities. Therefore, data were weighted by using the inverse of selection probabilities. These weights take into account:

- The trip counts made by interviewers. It is not the same, for example, to have 8 questionnaires administered in a time band where 16 trips have been counted (each respondent representing 2 trips) as 8 questionnaires administered in a time band where 160 trips have been counted (each respondent representing 20 trips).
- The different response rates according to type of use (walkers were more prepared to stop and answer the questionnaire than runners and cyclists).
- The double sample size for the months containing holiday periods (Easter, July and August).
- The length of the trip (the probability of meeting one of the interviewers is higher if the trip is longer). This weighting, added to the fact that data were collected all along the route in both urban and rural areas, allows for both long and short trips to be fairly represented in the study.

$$\text{weight(holiday periods)} = \frac{\text{trip count within cluster}}{\text{administered questionnaires within cluster}} \times \frac{1}{\text{response rate by type of user}} \times \frac{1}{2} \times \frac{1}{\text{distance travelled}}$$

$$\text{weight(other periods)} = \frac{\text{trip count within cluster}}{\text{administered questionnaires within cluster}} \times \frac{1}{\text{response rate by type of user}} \times \frac{1}{\text{distance travelled}}$$

The responses were reviewed and inconsistent responses or those outside the range corrected wherever possible, or otherwise declared as missing values. Some examples are users failing to state the use of a particular service but providing an expenditure figure, or users stating an unfeasible trip duration according to the distance travelled. However, the proportion of inconsistent responses was always below 1%.

The responses to the two open questions were awarded codes according to the spirit of the deconstruction method: “Deconstruction looks for the multiple meanings implicit in the text, conversation or event....” (Feldman, 1995, p. 51). It should be borne in mind that the same language can express different meanings. In any text or conversation, what is written or said is only a partial and selective representation. Everybody tends to understand and express things differently, conditioned by their own experiences. Therefore, it would be a bad idea to interpret the response only according to what is strictly said or written. For example, one of the responses to the open question “What would you improve about the greenways?” was “Bicycles”. This cannot be understood in a purely literal sense, but considering that this respondent and others who gave similar responses were walking the route, and that some respondents who provided the same answer also complained about the conduct of cyclists, it can be deduced that users walking the route felt inconvenienced by cyclists. The meaning of the text, action or conversation will always depend on the context in which it is relayed. By applying this method, 500 questionnaires were used to define a list of

codes for each of the open questions. Once this list had been completed, the aforementioned codes were assigned to all of the questionnaires. Following this, the frequency with which each code appeared was observed and similar codes with very low frequencies were grouped together to facilitate the subsequent statistical analysis.

3. User profiles

We found several different types of greenway user profiles along the set of dimensions: the walker and the cyclist, the tourist and the local, the recreational user and the health seeker. By combining the variables that provide this type of information we built a manageable number of distinct and meaningful profiles. The following questions were used: how respondents are travelling on the greenway, the length of their journey on the greenway, their reasons for using the greenway, and the proximity of their place of residence to the greenway. By crossing all four variables we obtained 55 response combinations with a non-zero frequency.

If we make a qualitative grouping of the 55 combinations according to their conceptual similarity, we can classify the trip profiles into five types:

- Tourist: walking or cycling trip of half a day or more, by a user not resident in the area and stating motivations relating to tourism or leisure.
- Physical activity walking: walking trip of under two hours, by a user who lives in the area, stating motivations relating to physical activity or health.
- Physical activity jogging: jogging trip of under two hours, by a user who lives in the area, stating motivations relating to physical activity or health.
- Physical activity cycling: cycling trip of under two hours, by a user who lives in the area, stating motivations relating to physical activity or health.

- Utility trips: walking or cycling trip of under two hours, by a user who lives in the area who states that he or she uses the greenway to run errands or travel to place of work/study.

Another relevant classification of greenway profiles considers frequency and timing of use. We submitted the three frequency-of-use variables (weekdays, weekends and longer holiday periods) to a cluster analysis using Ward's method (see, for instance, Aldenderfer & Blashfield, 1984). As recommended by the literature, classifications from 2 to 6 clusters were examined not only for interpretability, but also for explained variance and stability. The 4-cluster solution was selected and was found to be conceptually sound, stable (replication using the k-means method led to 92.7% of cases being identically classified), and to properly summarize the information found in the three original variables (73.0% average variance explained).

Users were asked general questions on frequency of use that did not refer to the particular trip, which means we are clustering users, not trips. The first cluster is mainly composed of holiday users. The second cluster is composed of everyday users. The third is composed of occasional users and the fourth of weekday users (Table 1). The conceptual distinction between everyday and weekday users may seem to be a subtle one, but further analyses in this section will reveal substantially different demographic profiles.

Frequency-of-use cluster	Weekdays	Weekends	Holidays
Holiday users	0.0	0.9	2.3
Daily users	4.3	1.5	4.2
Occasional users	0.0	0.6	0.0
Weekday users	3.9	1.1	0.0

Table 1. Description of the four frequency-of-use clusters. Average use frequency (times per week) on weekdays, weekends and holidays

Table 2 shows the percentages of both classifications by type of trip (last column) and frequency of use (last row) based on unweighted data. This table is only included to illustrate the importance of weighting. All remaining tables in this article and all textual information report weighted results correctly. If we fail to take into account unequal probabilities of selection and thus use unweighted data, we will have substantially different results with respect to those in Table 3. The largest difference is found in the percentage of tourist trips, which is three times larger than it should be.

		Frequency-of-use cluster				
		Holiday users	Daily users	Occasional users	Weekday users	Total
Type of trip	Tourism-related	1.1	0.0	4.4	0.1	5.6
	Physical activity walking	4.5	39.2	3.5	10.2	57.5
	Physical activity jogging	0.0	4.5	0.5	1.3	6.3
	Physical activity cycling	9.3	7.5	5.2	5.2	27.2
	Utility trips	0.2	1.5	0.1	1.5	3.4
Total		15.2	52.7	13.8	18.3	100.0

Table 2. Classification according to type of trip and frequency of use (%).

Unweighted data

		Frequency-of-use cluster				
		Holiday users	Daily users	Occasional users	Weekday users	Total
Type of trip	Tourism-related	0.4	0.0	1.3	0.1	1.8
	Physical activity walking	3.5	48.4	3.4	9.9	65.3
	Physical activity jogging	0.0	5.5	0.5	1.2	7.2
	Physical activity cycling	7.1	6.1	3.5	5.2	21.8
	Utility trips	0.5	1.9	0.2	1.3	3.9
Total		11.5	62.0	8.9	17.6	100.0

Table 3. Classification according to type of trip and frequency of use (%). Weighted data

Automatic counters used by the Girona Greenways Consortium estimate 1.3 million trips per year. The Consortium implements a number of corrections to improve the raw automatic counter data. The counter data are carefully checked for outliers and malfunction. A fixed counter is used to account for seasonality and a mobile counter is installed at 19 regularly-spaced intervals along the routes. Data taken from the user survey on percentages of trip lengths are used to subtract multiple counts for longer trips.

As Moore and Ross (1998) suggest, greenways do not serve mainly tourists, but local communities. Only 1.8% of trips are tourism-related (see Table 3). 1.3 million total trips roughly amount to twenty-three thousand tourism-related trips per year. However respectable this number may seem, it is dwarfed by the vast majority of local trips whose purpose is beyond tourism. A large majority of trips fall under the headings related to physical activity. Trips made along the greenway for the purposes

of travelling to work or school or running errands also outnumber tourism-related trips (3.9%).

Overall in the sample, 68.2% walk, 7.2% run, 24.4% cycle and 0.1% use a wheelchair. The vast majority of trips falling into the category of physical activity are walking trips, though a respectable number are cycling and a smaller number running trips. Two respondents within this category were using a wheelchair. The Greenways Consortium is making great efforts to promote greenway enjoyment among the less able.

The utility group was too small to subdivide into cycling, running and walking subgroups for further statistical analysis. Within this group, roughly two thirds walk and one third cycle; no one runs.

The tourist group was also too small to subdivide into cycling, running and walking subgroups for further statistical analysis. Within this group, roughly five sixths cycle and one sixth walk; no one runs. There is therefore a large overlap between greenway tourism and cycle tourism.

When we look at the classification according to frequency of use in Table 3, the majority of trips are made by everyday users, the smallest groups being holiday users and occasional users. This does not come as a surprise, as both classifications overlap to some extent. Tourist trips tend to coincide with occasional and holiday users. Physical activity seekers who walk and run tend to use the greenway very frequently, as reported by Gobster (2005), and tend to belong to the daily use cluster and, to a lesser extent, the weekday use cluster. Those using the greenway for utility trips are equally divided into the weekday and daily clusters. A substantial number of cyclists seeking physical activity are found in all frequency clusters.

With regard to the demographic description of profiles, tourists tend to be in the two younger age segments, male and travel along the greenway in larger groups of three or more people. Walking physical activity seekers tend to be female, pensioners and travel in pairs. Jogging physical activity seekers tend to be the youngest and use the greenway alone. Cycling physical activity seekers tend to be in the two younger age segments and have a diverse group composition. Utility trips also tend to be made alone, but by the most heterogeneous group with regard to gender and age (Table 4). Associations between type-of-trip profiles and demographic variables were quite strong. Cramér's V statistic, analogous to a correlation coefficient suitable for pairs of qualitative variables, was 0.43 between type of trip and age, 0.38 between type of trip and gender and 0.22 between type of trip and group composition.

		Tourism-related	Physical activity walking	Physical activity jogging	Physical activity cycling	Utility trips
Age	40 and under	47.6	10.9	80.4	55.7	35.4
	41 to 64	47.6	25.3	14.1	35.4	18.8
	65 and over	4.8	63.8	5.4	8.9	45.8
Gender	Man	72.7	34.3	65.9	78.2	52.1
	Woman	27.3	65.7	34.1	21.8	47.9
Group comp.	Alone	4.3	37.8	83.5	50.2	54.2
	2 people	39.1	45.8	16.5	34.7	43.8
	3 or more	56.5	16.5	0.0	15.1	2.1

Table 4. Demographic description of type-of-trip profiles (column %)

Holiday and occasional users tend to be in the two younger age segments, male and travel in pairs or larger groups. Daily users tend to be female, pensioners and travel

alone or in pairs. Weekday users tend to use the greenway alone but are the most heterogeneous group with regard to gender and age (Table 5). There is a fairly strong association between frequency-of-use profiles and age (Cramér's V=0.34). The associations with gender and group composition were much weaker (Cramér's V equal to 0.12 and 0.16 respectively). Compared to the weekday user group, the daily user group contains more older women who walk the route. In numbers, older women walking the route on a daily basis are one of the major user segments of the greenways and correspond to 23.2% of total trips.

		Holiday users	Daily users	Occasional users	Weekday users
Age	40 and under	57.3	16.2	51.8	35.2
	41 to 64	42.0	19.9	35.5	32.0
	65 and over	0.7	63.9	12.7	32.9
Gender	Man	59.7	43.5	55.5	51.1
	Woman	40.3	56.5	44.5	48.9
Group comp.	Alone	35.7	45.3	21.8	55.0
	2 people	42.0	42.2	44.5	35.5
	3 or more	22.4	12.6	33.6	9.5

Table 5. Demographic description of frequency-of-use clusters (column %)

Further variables in the questionnaire support the major findings in the above profiles, namely that the majority of trips are walking, non-tourist and frequent. 69.0% lasted under one hour, 25.9% between one and two hours, 4.6% between two hours and half a day, and a mere 0.5% more than half a day. 89.4% were less than 10 kilometres in length, 7.0% from 10 to 20 kilometres, 2.8% from 20 to 50 kilometres and 0.8% over 50 kilometres in length. The overall average distance was 5.8 km, which increased to 33 km in the tourist profile and 11 km in the physical activity cycling profile. The

remaining three use profiles all had averages in the vicinity of 4 km. Most users did not use vehicles to get to the greenway. Just 4.9% used their own car and 0.3% some form of public transport. Within the small tourist profile the percentage of car users rises to 48.3%. However, overall it can be said that the Girona greenways are rather environmentally friendly, attracting mainly local users who access the greenway by walking or cycling from home.

The most often mentioned reasons for using the greenway are health, leisure and physical activity (Table 6). Living in the area is the most common source of information, followed by word of mouth. Sources of information aimed at tourists (Internet, fairs, travel agencies, leaflets) reach only a minority of users. Only a minority of trips involve spending money on services along the way (8.1%), the average expenditure for these being 8.55 euro. The global figure for an estimate of 1.3 million trips is slightly below one million euro. The most commonly used service was the bar. Only 0.3% spent money on accommodation.

Reasons for using the greenway		Source of information regarding the greenway		Services used close to the greenway	
Health	70.7	Lives close to greenway	95.8	Bar	6.5
Physical activity	52.2	By word of mouth	4.6	Restaurant	1.0
Leisure	47.8	Press	1.4	Shopping	0.9
Other	7.2	Internet	1.3	Transport	0.9
Utility trips	3.8	Consortium leaflet	0.8	Accommodation	0.3
Hiking or cycle-tourism	2.9	Books and guides	0.7	Bicycle rental	0.1
Educational activities	0.0	Radio or television	0.5	Bicycle repair	0.0
		Travel agencies	0.1		
		Fairs and exhibitions	0.1		

Table 6. Reasons mentioned for using the greenway, sources of information about the greenway and services used along the greenway (%)

Reasons for using the greenway, knowledge of the greenway from living in the area, and time and therefore distance travelled along the greenway were used to construct the profile variables and are thus related to them in an obvious way. It is interesting to relate to the profiles the remaining sources of information and service use. Travel agencies, fairs and exhibitions, bicycle rental and bicycle repair are omitted due to an insufficient number of cases.

Table 7 shows that tourist trips differ from the remaining profiles in an expected way regarding information sources and service use, Cramér's V figures being generally sizeable.

A substantial percentage within the tourist profile used word of mouth, Internet, press and broadcast media as information sources. Leaflets and guides mentioning the

greenway reach them to a far lesser extent, however. Non-tourists rarely use formal information sources as they have first-hand knowledge.

Tourists consume bar and restaurant services more often and, to a lesser extent, transport and accommodation, than local people. Bars are used by a certain percentage in all profiles, while shopping is mostly found in the utility group.

	Tourism-related	Physical activity walking	Physical activity jogging	Physical activity cycling	Utility trips	Cramér's V
Information by word of mouth	57.3	3.6	0.6	5.6	0.0	0.34
Information from press	31.8	0.6	0.0	2.2	0.0	0.35
Information from Internet	39.2	0.2	0.0	2.4	0.0	0.44
Information from Consortium leaflet	10.1	0.7	0.0	0.8	0.0	0.14
Information from books and guides	6.5	0.2	0.0	2.2	0.0	0.13
Information from radio or television	16.1	0.0	0.0	1.1	0.0	0.30
Uses bar	46.0	4.2	1.1	12.0	6.4	0.25
Uses restaurant	33.8	0.2	0.0	1.0	0.0	0.45
Goes shopping	3.8	0.2	0.0	1.5	10.2	0.20
Uses transport	17.7	0.6	0.0	0.7	1.1	0.24
Uses accommodation	14.5	0.1	0.0	0.1	0.0	0.32

Table 7. Percentages for information sources and service use within type-of-trip profiles

Expenditure constitutes a direct economic impact, although it is often argued that expenditures by local residents are mere transfers and not real gains in local welfare (Walsh, 1986). The 23,000 annual tourist trips have an average expenditure of 12.18 euro, which amounts to an estimated direct impact of 280,000 euro. This estimate can

only be considered to be a rough approximation for a number of reasons: it is based on a single question regarding individual expenditure; no multiplier was used to include indirect impacts; no question was asked regarding what respondents would have spent money on and where if the greenway had not existed, thus making it impossible to distinguish net spending from displacement (Frechtling, 2006; Downward et al., 2009).

Table 8 shows that occasional users and, to a lesser extent, holiday users differ from the remaining profiles in an expected way regarding a higher use of information sources and services. Most variables exhibit substantial relationships with the frequency-of-use profile, as measured by Cramér's V statistic, with the exceptions of accommodation, shopping, radio and the Consortium leaflet.

	Holiday users	Daily users	Occasional users	Weekday users	Cramér's V
Information by word of mouth	10.7	1.4	24.0	2.6	0.32
Information from press	1.2	0.1	13.5	0.2	0.32
Information from Internet	1.8	0.1	12.3	0.0	0.30
Information from Consortium leaflet	0.6	0.2	6.5	0.5	0.19
Information from books and guides	1.0	0.1	6.5	0.0	0.21
Information from radio or television	1.5	0.0	3.9	0.0	0.16
Uses bar	15.3	3.1	20.8	5.9	0.24
Uses restaurant	0.7	0.3	8.1	0.0	0.23
Goes shopping	0.2	1.3	0.9	0.2	0.05
Uses transport	1.0	0.2	6.8	0.3	0.20
Uses accommodation	0.0	0.1	3.2	0.0	0.15

Table 8. Percentages for information sources and service use within frequency-of-use clusters

4. Perceptions of the greenway

The two open questions we asked users regarding what they most liked and disliked and a battery of Likert-type items asking for an evaluation of different aspects of and facilities on the greenway help us to provide management recommendations with regard to the general improvements that need to be made. As regards the aspects mentioned as the most disliked (Table 9), poor greenway maintenance is the most often mentioned. The surface of the greenway is mainly composed of coarse sand and deteriorates after heavy rainfall. The second aspect is conflict with other users of the greenway, in particular walkers complaining about bicycles; this may be related to another aspect also mentioned, namely that the greenway is too narrow. That may be related to its origins as a 0.75 to one metre line (depending on the specific section of

the route) rather than the standard, 1.435 metres, or in Iberia, 1.668 metres. A third aspect concerns safety, fences, crossings, signposting, and lighting. In most places there is no lighting at night. Related to this, conflict with motorized vehicles, on the greenway or beside it, is also mentioned regularly. The greenway crosses the main road in a few places, and in certain other places motorized vehicles belonging to rural owners are allowed onto it. This rarely causes accidents, but two cyclists were killed within a few months after the study was carried out, and the issue was widely discussed in the local newspapers. Another major issue is benches, rest areas, especially in the shade, toilets and fountains, which are indeed few and far between.

With regard to the most liked aspects, they coincide to a great extent with the communications policy of the Greenways Consortium: beautiful scenery, quiet, an easy to follow route with only gentle slopes, appropriate for physical activity for all ages.

Most disliked		Most liked	
Poor maintenance	20.6	Beauty of natural environment	37.2
Conflict with other users	15.5	Well-being and quiet	29.3
Safety, fences, crossings, signposting, lighting	8.7	Not difficult. Comfort	11.1
Benches and rest areas	8.2	General positive evaluation	11.0
Too narrow	7.5	Good conditions for physical activity	4.0
Lack of drinking fountains	6.8	Safety	3.9
Conflict with motorized vehicles	6.0	Good condition of surface	2.2
Uncleanliness	5.7	Other	1.4
Too close to main road	5.0		
Improve certain stretches. Steep inclines	4.1		
Litter bins, toilets	3.9		
Lack of shade and/or trees	3.8		
Other	2.4		

Table 9. Percentages of respondents mentioning the most liked and most disliked aspects of the greenway (open question)

With a lesser degree of detail, Table 10 addresses some of the same issues spontaneously raised by respondents. On the whole, evaluations are positive if we take into account the fact that the midpoint of the response scale is 3. The complaints about fountains confirm those in Table 9. Signposting and information receive high marks, and our own observations confirm that they are plentiful, informative and in good condition. Safety elements, furnishings and the condition of the surface receive lower average evaluations and also coincide with items disliked by a higher percentage of respondents.

Signposting	3.78
Information points	3.61
Cleanliness	3.57
Rest areas	3.54
Safety elements (fences)	3.42
Furnishings (benches, litter bins)	3.39
Condition of the road surface (absence of potholes, stones,...)	3.29
Drinking fountains	2.24

Table 10. Mean response for 1 to 5 Likert items regarding different aspects of the greenway

The response regarding the most disliked aspect of the greenways was the only variable in this section to show a substantial relationship with trip type (Cramér's V=0.24) and frequency of use (Cramér's V=0.24) profiles. This can help us in identifying changes or improvements that would be most valued by tourists, occasional and holiday users (Tables 11 and 12).

Tourists do indeed appear to behave differently with respect to what they dislike. They mention safety, being close to the main road and a lack of fountains much more often than do other users. Occasional and holiday users mostly share the same concerns.

	Tourism-related	Physical activity walking	Physical activity jogging	Physical activity cycling	Utility trips
Poor maintenance	7.7	18.6	21.7	24.8	30.0
Conflict with other users	0.0	19.1	27.5	1.9	10.0
Safety, fences, crossings, signposting, lighting	15.4	5.9	1.4	19.7	10.0
Benches and rest areas	0.0	11.3	1.4	3.2	5.0
Too narrow	7.7	5.9	13.0	10.2	5.0
Lack of drinking fountains	15.4	5.3	4.3	12.1	7.5
Conflict with motorized vehicles	0.0	6.8	7.2	2.5	10.0
Uncleanliness	0.0	7.8	4.3	1.9	0.0
Too close to main road	30.8	4.9	5.8	4.5	0.0
Improve certain stretches. Steep inclines	0.0	2.0	7.2	8.9	2.5
Litter bins, toilets	0.0	4.5	0.0	1.9	12.5
Lack of shade and/or trees	7.7	3.7	4.3	4.5	2.5
Other	15.4	2.0	0.0	3.2	2.5

Table 11. Percentages of respondents mentioning the most liked and most disliked aspects of the greenway (open question) within type-of-trip profile

	Holiday users	Daily users	Occasional users	Weekday users
Poor maintenance	18.0	22.3	24.2	15.6
Conflict with other users	7.9	19.4	6.1	11.0
Safety, fences, crossings, signposting, lighting	13.5	5.4	15.2	15.6
Benches and rest areas	3.4	8.5	6.1	11.9
Too narrow	7.9	8.5	6.1	4.6
Lack of drinking fountains	12.4	4.5	19.7	5.5
Conflict with motorized vehicles	3.4	7.6	1.5	4.6
Uncleanliness	4.5	6.6	0.0	3.7
Too close to main road	10.1	5.2	3.0	2.8
Improve certain stretches. Steep inclines	9.0	2.1	1.5	9.2
Litter bins, toilets	3.4	3.5	1.5	7.3
Lack of shade and/or trees	1.1	4.5	7.6	0.9
Other	4.5	1.0	4.5	2.8

Table 12. Percentages of respondents mentioning the most liked and most disliked aspects of the greenway (open question) within frequency-of-use cluster

5. Conclusion

The results show that the greenway's direct positive impact on members of communities is far greater than that obtained by the tourism activity it generates. Some studies in other countries dealing with even longer trails also report a sizeable proportion of local trips (e.g. Lumsdon et al. 2004). The Girona Greenways Consortium estimate of 1.3 million annual trips translates into twenty-three thousand tourist trips, fifty-one thousand trips to and from work, place of study or shopping, and over 1.2 million trips made for the purpose of physical activity, by residents close to the greenway, who use it on a frequent basis and do not spend money on any particular service aimed purely at tourists. Those users are of all age and gender groups, although their choice to walk, jog or cycle is certainly dependent on age and

gender. The greenway encourages them to do physical activity, saves them the fees of alternative indoor pay facilities, and provides them with a friendly environment for said physical activity. Aware of this, many communities in the area of Girona located at too great a distance from the greenway for local users have embarked upon building their own local greenways. These are typically under 10 km in length and are thus aimed directly at the local user rather than the tourist. It would therefore appear that local authorities are bearing local users more in mind when planning such infrastructures.

The impact of greenways on tourism should not be dismissed, however, as the area through which the greenway passes is relatively undeveloped in terms of tourism and 23,000 tourism-related trips is an important figure considering the size of the local tourism industry. Moreover, since the 23,000 tourism-related trips tend to be longer in terms of time and distance, the general perception of the area in the tourist sector is that the proportion of tourism-related trips is greater than that indicated by these figures. The impact is also important from a qualitative viewpoint, as it contributes to making tourist demand less seasonal throughout the year, the area around Girona traditionally receiving summer sun-and-beach tourism for the most part.

Finally, it is acknowledged that a fine line divides tourism-related trips from the rest. The fact that we defined tourist trips in our own data after qualitatively examining the responses to a large number of questions can only emphasize this point. “Cycling in the countryside could be undertaken in order to get to work. This element of the day could be nevertheless recreational activity as well […] Recreational cycling by local people […] could be viewed as tourism activity if it offers a similar experience to that enjoyed while on holiday elsewhere” (Downward et al. 2009, p. 26).

5.1. Management implications and recommendations

Some of the results obtained, in particular with regard to promoting tourist use, have clear implications for management.

Within the tourist profile, only 4.8% are over 65. The gentle nature of the route represents significant growth potential for this age group, and this should be exploited. Within this segment there are people from all income levels, something which would generate a demand for quality tourist services. The low proportion of tourists of a certain age has also been shown in other studies (Cope et al, 1998; Ritchie, 1998).

The greenway receives little exposure in pamphlets and guidebooks, although this is precisely the source of information most used by older users, more than Internet (the 2009 new technologies survey of the Spanish National Statistical Institute showed a decline in regular internet use with age, from 86.0% in the 16 to 24 years group to 9.3% in the 65 and above group). It would therefore be necessary to improve the dissemination of information regarding the greenway by these means, emphasizing its suitability for all ages, as demonstrated by the distribution of ages among local users.

Some of the results obtained regarding the perceptions of the different user profiles, not only tourists, also have clear implications for the management of this greenway, and even more so for the planning of future greenways. One example of this is the fact that the track is difficult to widen once the greenway has been built. In this respect, the adaptation of conventional railway lines in disuse holds more promise than that of narrow gauge lines. In Spain, conventional lines were abandoned later than narrow gauge lines and their tunnels and bridges tend to still be intact, which would avoid any steep inclines. There are also many rural dirt tracks, which tend to be

in poor condition and rarely used by motorized vehicles, and could be re-laid and adapted for recreational purposes. In Spain, these tracks tend to be 3 to 4 metres wide, which is far wider than a narrow gauge railway track. For their part, tourists have identified some stretches close to the road and places where the greenway crosses the road as being dangerous. It would be fairly easy to build underground passages at crossing points, although deviating the greenway further from the road for many kilometres is hardly feasible. Also in relation to this, users mention conflicts with motorized vehicles. Many communities the greenway passes through lack their own network of cycling paths connecting the greenway with the town centres, shopping areas, schools and the like. This can be solved fairly easily by the communities themselves, but is not within the scope of the Girona Greenways Consortium.

There are, however, many other matters related to this particular greenway that the Consortium can deal with easily. First of all, maintenance needs to be improved, particularly after heavy rainfall. Signposting needs to be improved, which includes accesses to shopping areas in villages and rural accommodation along the greenway, so as to increase use of the accommodation and shopping services, which have a clear potential for growth, registering a use of only 14.5% and 3.8% during tourist trips.

It is also necessary to create and signpost more drinking water supply points along the greenway. Ideally, it would be possible to plant deciduous trees, which would provide shade in the summer and allow the sunshine through in the winter, and install benches, tables and litter bins to create areas where it is possible to rest, have something to eat, and use the restroom.

Finally, although tourism is currently not a major greenway activity in this case, it is possible that tourism usage could become more important in the future. The

greenway could be integrated more closely in to a holistic sustainable tourism strategy, with en route accommodation possibilities for cyclists / walkers undertaking longer tours across the network, and cycle hire opportunities. Better niche marketing of the region could be undertaken drawing attention to this carbon free tourism opportunity. More widely, the greenway concept could become an important part of tourism's adaption to climate change because of its fundamentally environmentally friendly nature (see Scott, Gössling & Peeters, 2010).

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Acknowledgements

Acknowledgements are due to the Girona Greenways Consortium and the Catalonia Employment Service (*Servei d'Ocupació de Catalunya* or SOC), which forms part of

the Autonomous Government of Catalonia's Labour Department, for sponsoring data collection, to Bernard Lane for his useful comments and additions to the paper, and to three undergraduate Tourism students who worked on this project as part of their degree theses, Maria Jesús Martínez Jiménez, Sandra Isern Ruiz and Laura Ruiz Benavides.

BIOS

Dr. Lluís Mundet studied human geography and is associate professor of tourism planning at the Faculty of Tourism of the University of Girona, Spain. His research focuses in coastal tourism, ecotourism and rural tourism. He collaborates with the International Spanish Agency for Cooperation and Development in several projects related with tourism in Brazil, Costa Rica, Cuba and Peru.

Dr. Germà Coenders studied Management Sciences and is associate professor of quantitative methods at the Faculty of Tourism of the University of Girona. His research speciality is survey methodology and statistical models for measurement errors, topics about which he has published over 20 articles in ISI journals. He is a founding member of The European Survey Research Association (ESRA). In 2003 he obtained the Tourism Economics award for journal article excellence.