

Are we preaching at the right level?

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Introduction

Belgium is a small densely populated country in the centre of Europe. The population is well informed and has access to various sources of information (national and international papers and magazines, plenty of international TV channels).

For the past few years the National Botanic Garden of Belgium (www.botanicgarden.be) has made the conscious effort to include plant conservation issues in most of its public communications. In almost every press communication we incorporated this message. But as we developed this strategy some fundamental questions arose. Was there anybody listening to what we were saying? Did people understand us? Were we using the right words, or were we simply preaching to the converted. We decided to test the general public on their knowledge concerning plant conservation.

Methods

We drew up a questionnaire (*Table 1*) with the aim to find answers to the following questions:

- Are people aware of a problem?
- Are people aware of the causes of this problem?
- Do people know any threatened plant species?
- Do they think they can do something themselves?
- Do people think the Botanic Garden is doing something for plant conservation?

Twelve of our garden-volunteers were mobilised. They got a briefing on how to present the questionnaire and how to ask the questions. To relieve the anxiety of our volunteers we provided them with the correct answers where necessary. To avoid a certain bias we asked them not to question close relatives or friends. Over a period of a few weeks the volunteers collected results in their local environment. Several members of garden staff also distributed the questionnaire or sent it out by email.

Results

We got a return of 286 questionnaires; this is a relatively small sample. Males (49,26%) and females (50,74) were roughly equally represented.

The majority of the results are represented in table 1.

- Of all our respondents 44,95% described themselves as “interested in plants but not knowing much about them,” 3% was “not interested in plants”.
- Many people (89,60%) claimed that they could identify a threatened animal species, and the giant panda was the example most cited (45 times). Other “popular” examples were, in mathematical order; Tiger, Polar bear, Whale, Elephant, Gorilla and “Orang-utan. Also “birds”, “antelope” and “fox” were given. In total 51 different “species” were cited. Of these we could identify 40 true species, meaning that people used an accepted vernacular name. Half of these were indigenous Belgian species, often cited only once.

- A smaller number (59,5%) could identify a threatened plant species and surprisingly enough Edelweiss was the example that came up most (17 times). "Orchids" came second, followed by "tropical trees" and "rainforest plants". But also "corals" and "vegetables" were considered threatened plant species. In total 45 different examples were registered, of these we could identify 24 true species, 18 of these were indigenous Belgian species, often cited only once.

<p>1) How would you describe yourself?</p> <p>a) <i>I'm interested in plants but know little of them</i> = 44,95 %</p> <p>b) <i>I'm interested in plants and I'm somewhat knowledgeable</i> = 22,22 %</p> <p>c) <i>I'm interested in plants and would like to know more about them</i> = 22,22 %</p> <p>d) <i>Actually I don't know anything about plants</i> = 7,58 %</p> <p>e) <i>I'm not interested in plants</i> = 3,03 %</p>
<p>2) Do you know a threatened animal species?</p> <p>Yes = 89,60 % / no = 10,40 %</p>
<p>3) Can you give an example of a threatened animal species?</p>
<p>4) Do you know a threatened plant species?</p> <p>Yes = 59,5% / no: 40,5 %</p>
<p>5) Can you give an example of a threatened plant species?</p>
<p>6) How many plant species are there worldwide?</p> <p>3.000 = 0% / 30.000 = 16,83% / 300.000 = 83,17%0</p>
<p>7) How many indigenous plant species are there in Belgium</p> <p>150 = 6,86% / 1.500 = 57,36 % / 15.000 = 35,78 %</p>
<p>8) Do you think that certain plant species are threatened by extinction?</p> <p>Yes = 97,51% / no = 2,49%</p>
<p>9) What % of all plant species is threatened in one way or another?</p> <p>Don't know = 14,93% / 10% = 33,83% / 25% = 34,83% / 40% = 16,41%</p>
<p>10) What is the effect of the following on the presence of plant species?</p> <p>a) <i>Logging of forests</i></p> <p>b) <i>Disturbance of growing environment</i></p> <p>c) <i>Invasive species</i></p> <p>d) <i>Illegal collecting of plants for horticulture</i></p> <p>e) <i>Excessive energy consumption in U.S. and E.U.</i></p>

<p>11) What are invasive plant species?</p> <p>a) <i>Indigenous plant species that displace plants in the garden = 5,03%</i></p> <p>b) <i>Indigenous plant species that displace plants in nature = 18,59%</i></p> <p>c) <i>Foreign plant species that displace plants in nature = 76,38%</i></p>
<p>12) Do you grow wild plants in your garden?</p> <p><i>Yes = 52,74% / no = 32,84% / have no garden = 16,42%</i></p>
<p>13) Show picture of <i>Wollemia / Brighamia</i></p> <p>Would you buy this plant species? <i>Yes/no</i></p>
<p>14) Would you buy this plant species if you knew it was a threatened species, and buy buying this plant you would contribute to the protection of this plant species in the wild? <i>Yes/no</i></p>
<p>15) Which of the following strategies is most effective to save threatened plant species from extinction</p> <p>a) <i>Do nothing, wild plants are not interesting = 0%</i></p> <p>b) <i>Grow these plants in the gardens of as many people as possible = 4,46%</i></p> <p>c) <i>Establish conservation areas for plants = 68,81%</i></p> <p>d) <i>Grow these plants in botanic gardens = 26,73%</i></p>

Table 1: The questionnaire and the results. Questions are in bold, answers and their score in % are represented in italic. The results for questions 3 and 5 are given in the text above. The results for questions 10, 13 and 14 are given in tables 3 and 4. The original questionnaire was in Dutch.

The public seemed aware that plants were threatened; 14,93 % didn't know which % of the Plant Kingdom was in some way in danger; 16,41% thought 40% was threatened. Almost everybody (97,51%) thought that certain species were threatened by extinction.

On the total number of existing species and their presence in Belgium views differed. In total 83,17 % knew or guessed that there were 300.000 plant species and 57,36% knew that Belgium has approximately 1.500 wild species. But only 47,26% actually got both numbers correct and almost one third (31,84%) grossly overestimated the number of Belgian species (Table 2)

Total # plant species:	3.000	30.000	300.000
Belgian wild species:			
150	0	2,49	4,98
1.500	0	11,44	47,26
15.000	0	1,99	31,84

Table 2: Combination of answers to questions 6 and 7.

Considering the threats that plants face, logging of forests was seen as the most serious threat (Table 3) closely followed by disturbance of the growing environment and climate changes. Wild collecting and invasive species were perceived as less harmful. Most people (76,38%) seemed to know what invasive species were. More than half of our respondents (52,74%) grew wild plants in their garden.

	No idea	Little	Some	Large
Logging	0,97	0,32	2,92	12,49
Disturbing	0,73	0,49	4,30	11,68
Invasive species	1,30	2,51	7,06	6,08
Climate change	0,65	1,14	3,73	10,62
Wild collecting	1,30	4,46	6,97	3,57
Energy consumption	0,81	1,38	5,19	9,33

Table 3: What is the effect of the following on the presence of plant species?

For the next question people were shown a picture of a threatened plant species (*Wollemia* and *Brighamia*, without mentioning their name) and asked if they would buy this plant. Then they would be shown the same picture again and get asked the same question, but this time the questioner would add that it was a threatened plant species and that buying this plant would financially help plant conservation projects.

Interestingly, this persuaded 42,28% and 34,03% (*Wollemia* and *Brighamia* respectively) of people who would initially not buy the plant to change their mind (Table 4).

	Would buy		Would buy if money went to plant conservation	
<i>Wollemia nobilis</i>	Yes	26,24%	Yes	77,36%
			No	22,64%
	No	73,76%	Yes	42,28
			No	57,72

<i>Brighamia insignis</i>	Yes	40,50	Yes	89,80
			No	10,20
	No	59,50	Yes	34,03
			No	65,97

Table 4: Influence of knowing that buying a certain plant would financially benefit plant conservation.

Finally not many people (4,46%) see their own gardens as very useful in plant conservation. The majority (68,81%) favoured conservation areas, only 26,73% saw botanic gardens as the most efficient tool for plant conservation.

Discussion and conclusions

This survey obviously does not answer all questions, our sample is rather small and we will repeat the effort in the near future. We can, however, draw the following tentative conclusions:

Although people could easily and correctly cite examples of threatened animal species this was much less the case with plants. For the animal kingdom several "icon" species were given; "Giant panda", "Polar bear" or "Gorilla".

This was much less the case for plants. Only one true species was given; "Edelweiss" (*Leontopodium alpinum*). This is not an indigenous species in Belgium; it grows naturally in the European Alps, a favourite holiday destination. Other icons were "orchids" and "rainforest plants". The perception of what a "plant species" is seemed vague. Vegetables were, for instance, quoted as species. In recent years Belgium, as other countries, has known a revival in growing old fruit- and vegetable cultivars. Species like *Wollemia*, which recently have gotten a lot of media attention, were not registered in our survey.

We obviously need to give a better and a more exact definition of a plant species, but we should also use the non-species examples to reinforce the conservation message. Loss of diversity or genetic erosion can be illustrated more comprehensively using for instance old vegetable cultivars.

There is no clear picture of the total number of plant species in the world or in Belgium. Surprisingly enough quite a few of Belgian threatened species were cited, 18 out of the 24 plant species cited were indigenous plants. This leads us to the conclusion that our sample might be slightly biased, or that people simply know more names of local wild plants than of foreign wild plants.

We need to communicate more about the actual number of plant species growing in our own country, or in a given area, and use more local examples and emphasise vernacular names.

In general people seem to be aware that plants are facing a number of threats. They do underestimate the actual number of plant species that is threatened in one way or another. People do not seem to see their own actions as relevant in plant conservation. Growing wild plants in their garden is not seen as an important part in a strategy for plant conservation.

We need to more clearly define the actual threats that plant species face and give local examples. We also need to emphasize the fact that, for certain plants, growing them in private gardens can contribute to a better conservation of plant species.

People seem to be willing to give a passive support to plant conservation by buying certain plants. Roughly one third of the respondents changed their mind from no to yes, about buying a plant when they were told that it was a threatened species and that money from the transaction would go to plant conservation. Strangely enough about 15% of the people who would initially buy a plant decided against their decision after being informed that it was a threatened species and that a certain amount of the profit would be used for plant conservation. There might have been some confusion in formulating or understanding the question here.

Finally, only one quarter of our sample saw the botanic garden as an important element in plant conservation. We definitely need to emphasise and develop the vital role that botanic gardens have to play in this area.