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Residents' Perception of Tree Diseases in the Urban Environment

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Abstract. Urban greenspaces are essential for the health and well-being of citizens and the presence of trees is a key element for the improvement of urban environments. But trees may become a factor of risk for the citizen when they are diseased, declining or dead. Common people are usually unaware of the intimate causes of plant diseases. Based on a balanced sample of 944 detailed interviews carried out in a structured format by university students, a survey was performed to monitor the perception of citizens of evergreen ornamental plants (*Quercus ilex*) killed by a root disease. Most of the interviewed were customary or moderate frequenters of the venue. Most of the respondents were able to recognize the differences between the dead tree and other conspecific normal individuals, and 86.2% were aware of the risks connected with the collapse of unhealthy trees. Differences amongst genders, age groups, educational levels, and occupation were observed concerning the supposed cause of the death (due to a fungal rot disease). Environmental pollution was indicated as the culprit mainly by young people. Surprisingly, 42.9% of respondents were unable (or unavailable) to give suggestions to administrators concerning the management of public greenery.

Key Words. Environmental Psychology; Declining Trees; Group Interviews; Greenspaces.

The globe continues to urbanize such that more than half of human beings live in areas with "urban" characters; with two-thirds of all Europeans now residing in towns or cities (European Environment Agency, 1998). Urbanization is the dominant social phenomenon in all developing countries. It is generally believed that looking at natural scenery increases one's feeling of well-being, and contact with nature elicits psychological as well as physiological benefits (Parson 1991). Urban green areas are indicators of the perception of increased, residential environmental quality (Bonaiuto et al. 1999) and actually provide many environmental and social benefits (Smardon 1988). For instance, they positively alter microclimate through the production of shade, wind reduction, erosion control, pollutant removal, and noise abatement (Givoni 1991; Avissar 1996). Urban greenery has invaluable emotional, psychological, healing, and even spiritual values for many people. Even if most of the values attached to green areas are nonpriced environmental benefits, the presence of greenery significantly contributes to increase the market values and attractiveness of buildings and properties (Luttik 2000). Furthermore, high quality green and treed spaces increase the attractiveness of a city and promote it as a tourist destination, generating employment and revenue.

Trees are the largest and longest lived forms of life on terrestrial earth and are highly important to the characterization of urban landscapes. They are regarded as the most enjoyable aspect of urban gardens (Bennett and Swasey 1996), and are essential elements in most landscape design. In a given species, the ultimate features of a tree canopy are shaped by leaves and branches, and reflect health, growing conditions, and age of the individual tree. Plants, as well as all living beings, are victims of diseases and some of these can be lethal (Agrios 2005); the disease and the specific site conditions in urban areas (characterized by soil compaction, water stress, limited root space, wounding, and pollution) may reduce growth and vitality [most trees have smaller diameters than rural conspecifics of the same age (Quigley 2004)] or increase mortality of amenity trees (Marion et al. 2007). Urban trees may appear to be suffering, unhealthy or even dead to a citizen who is unaware of the intimate causes of the phenomena. Because plant pathology is the discipline which studies biotic (i.e., infectious) and abiotic factors responsible for stressing plants and reducing their quantitative and qualitative performances, one can promote knowledge of the relationship between natural environment and human psychological processes.

This study was carried out in the warm season of 2004 in Tuscany (central Italy) in order to assess the level of perception of diseases of trees by citizens, a subject that has never been covered before by environmental psychology literature.

METHODS

Location and Subjects

The survey was performed in the cities of Pisa and Livorno and in some minor urban centers of their districts. Firstly, a pilot investigation was conducted to select examples of typical study cases of diseased urban trees. The paradigmatic case was represented by single, isolated, mature (but not senescent) individuals of holm oak (*Quercus ilex* L.), an evergreen tree with fine foliar texture, indigenous of the Mediterranean basin, where it is widespread in urban forestry. These trees were in public gardens/boulevards and had foliage completely necrotic (brown) but still leaning (i.e., they were not defoliated); they were standing amongst similar individuals in good conditions. Holm oak is a long-living species, and its lifespan may develop over several centuries; rough estimates of the age of the individuals selected in this study are 50–80 years.

People were randomly approached around these dead/declining trees, while standing/walking in the surroundings and were briefly informed about survey's objective and answering procedure. In all, 944 participants were positively involved. Sample breakdown according to gender, age, education, and occupational

characteristics of respondents is reported in Table 1. Care was taken in order to cover various conditions for administrating the questionnaire, so different temporal windows (from morning to late afternoon) and days of the week were randomly selected.

The questionnaires were administered by 17 undergraduate students of the Faculty of Agricultural Sciences of the University of Pisa (10 males and 7 females), who volunteered by following a short introductory seminar. The interviewers wore a T-shirt, a cap, and a badge of their Faculty, to make them easily recognizable, and to look respectable but no too formal.

Table 1. Sample breakdown according to gender, age, education, and occupational characteristics of respondents (figures represent the responses per category).

Variable	*Levels*	*n*	*%*
Gender	Men	501	53.1
	Women	443	46.9
	Total	*944*	*100.0*
Age (years)	15-19	147	15.6
	20-30	270	28.6
	31-50	276	29.2
	Over 50	251	26.6
	Total	*944*	*100.0*
Education	Up to junior high school	79	8.3
	Senior high school	671	71.1
	Degree/Ph.D.	194	20.6
	Total	*944*	*100.0*
Occupation			
	Housewife	306	32.4
	Retired	184	19.5
	Student	181	19.2
	Professional[z]	144	15.2
	Manual[y]	110	11.7
	Others[x]	19	2.0
	Total	*944*	*100.0*

[z]Includes white-collar worker, teacher, self-employee, managers, and professionals.
[y]Includes workmen, unskilled workmen, and craftsmen.
[x]Includes unemployed.

Questionnaire

In addition to standard demographic profiles, the standard questionnaire comprised the following items:

1. Do you frequent this garden/boulevard (a) often; (b) sometimes; (c) seldom?

2. Can you recognize differences between this plant (dead) and the other(s) (healthy)? The following options were given: (yes; no; no reply.)

3. What could the cause of the death be? (open question, with a single answer allowed)

4. Are you aware that a diseased/dead tree may collapse and cause injury to people or property? (yes; no; no reply.)

5. Do you have any suggestions to give your administrators concerning the management of public greenery? (open question, with a single answer allowed).

All of the questions were put verbally and the responses were recorded immediately by the interviewer on questionnaire sheets carried on a clipboard. The short and easily understandable format allowed interviewed people to complete the survey in less than ten minutes, although some people lingered longer to ask questions about our research. All people who accepted to collaborate a tulip bulb was given as a sign of gratitude.

Statistical Analysis

Variability of the socio-demographic characteristics of participants (gender, age, education and occupation) in relation to their answers was analysed with contingency table [Pearson chi-square test (χ^2)]. This tests to the data sets to derive quantitative measures that are linked with the answers of respondents, have a null hypothesis that the relative frequencies of occurrence of observed events (in this case the responses) follow a specified frequency distribution. The events are considered to be independent and have the same distribution, and the outcomes of each event should be mutually exclusive.

The data are divided into *k* bins and the test statistic is defined as

$$\chi^2 = \sum_{i=1}^{k} (O_i - E_i)^2 / E_i ,$$

where O_i is the observed frequency for bin i and E_i is the expected frequency for bin i. The expected frequency is calculated by

$$E_i = N(F(Y_u) - F(Y_l)) ,$$

where F is the cumulative distribution function for the distribution being tested, Y_u is the upper limit for class i, Y_l is the lower limit for class i, and N is the sample size (Snedecor and Cochran 1989).

RESULTS AND DISCUSSION

Phytopathological Diagnosis

Preliminary conventional phytopathological investigations and etiological analysis were performed on tissues (collected *in loco*) of the paradigmatic trees, in order to ascertain the actual causes of the death. For the systematic classification of fungal pathogens have been used specific scientific texts (Anselmi and Govi 1996; Brown 1982; Goidanich 1975, 1986, 1987, 1994; Tattar 1978) that made it possible, to diagnose, in all cases, fungal root rot caused by *Armillaria* sp. So, for the aim of this study, the correct answer to the question #3 was "a disease."

If an infectious agent (a pathogenic fungal species) was the actual culprit, we should keep in mind that—especially in urban environments—other predisposing or contributing stress factors may play a role in decline and death of trees, such as drought, air pollution, poor fertility, soil compaction, or insects (Manion 1981). However, the peculiar location of the dead trees (surrounded by healthy ones) should suggest that "generic" stress factors (such as pollution) could not have been so selective to injure a single tree and to save all the others. Furthermore, age of the trees was not likely a stress factor, as the selected (dead) trees were quite uniform in size and shape to the adjacent, healthy trees.

Demographic Profile

As reported in Table 1, the demographic characteristics reported by the respondents show that they were evenly distributed across the levels of the measured independent variables. Slightly more of the respondents were male (53.1%) than female (46.9%), but this difference was not statistically significant. For the items related to behavioural patterns, the study indicated 1) the respondents are concentrated in the age range between 20 and 50 years of age (57.8%), and 2) their educational levels is "senior high school" (71.1%); only 20.6% had completed this level and gone on to at least some additional education in university or technical school ("Degree/Ph.D."). Housewives were the largest single groups in the distribution of respondents according to occupation (32.4%). The demographic profile shows that participants were evenly distributed across the levels of the measured independent variables. This suggests that the questionnaire survey succeeded in representing all categories of demographic variables.

Q1: "Do You Frequent This Garden/Boulevard (a) often; (b) sometimes; (c) seldom?"

Most of the respondents were customary (41.4%) or moderate (40.1%) frequenters of the venue were the survey was performed; only 18.5% were occasional visitors. We can assume that most of the participants had familiarity with the area and had several opportunities to observe the plants which were asked about. For this reason there are the three main components that Rosenberg and Hovland (1969) consider necessary to psychological construct of attitude: cognition, affection, and behaviours.

Q2: "Can You Recognize Differences Between This Plant (dead) and the Other(s) (healthy)?"

As expected, the large majority of respondents had no difficulties in detecting relevant macroscopic differences between the dead trees and the surrounding healthy trees. Positive responses were 76.3%; negative were a mere 8.3% and missing responses (or "*I-don't-know* replies) were 15.4%. Differences in macroscopical features between the two kinds of trees were dramatically obvious even to nonexperts. The source of the "nonexpert" approach is the stimulus-reaction relationship of experimental psychology, which perceives the environment as the sum total of the stimuli to which an individuals reacts, a particular condition (e.g., tree disease) serving as a factor external to the individual (Misgav 2000). The psychophysical paradigm, which was adopted in this study, results primarily from the stimulus-response tradition of classical psychophysics, because there is a mathematical relationship between physical characteristics of landscape and perceptual judgement of human observers (Daniel and Vining 1983).

Q3: "What Could the Cause of the Death of This Tree Be?"

Table 2 describes the responses to the open question aiming to ask the respondent about his/her hypothesis on the cause of the death of the tree, in relation to the demographic profile of respondents. Seven dominant answers were recorded, in addition to a myriad of isolated or uncommon (or extravagant) answers, which have been gathered in a miscellaneous "others" group. The correct answer (#1 in Table 2) was dominant, with a 35.5% of share. Young people (age 15-19), poorly educated people (up to junior high school), and students responses were significantly lower than the average (17.7%, 12.7%, and 16.6% respectively). Men answered correctly at 43.8% versus 26.0% of women. Apart from a miscellaneous "others" category, white-collar workers and laborers were the occupational categories (professional 56.2% and manual 45.4%) which positively responded better than the average. As an average, a respondent out of five was unable to express any opinion regarding the causes of the death of the tree (response #2 in Table 2). This was particularly true amongst women (31.6%), very young people (43.5%), low-educated people (41.8%) and housewives (32.4%). Chemical pollution (namely of air, soil, and water) (response #4 in Table 2) was elected as cause by 9.2% of respondents. Young persons were particularly represented in this group (18.4%). Men were significantly more concerned with this theme than women (13.6% vs 4.3%). Students (17.2%) and white-collars (13.9%) were the occupational categories which responded in this way above the average. A very technical (but improper) response was "bad management/pruning" (#5), which was given by an average 6.8% of respondents, with an interesting relevance of people aged 31–50 (12.3%). Age of tree was another noteworthy response (#6), with another 6.7% of respondents, mainly housewives (9.8%) and students (9.9%). Water shortage (#3) was a further frequent response (average 10.1%), with a relevant frequency in manual workers (including workmen and craftsmen); water relations are a critical issue in urban forestry (Whitlow et al. 1992) and recent summer seasons in Tuscany have experienced long periods of high temperatures and very scarce rain. Among the factors of perceived damage, damage caused by vandalisms, insects, wind, lightning; soil defects (#8) was the most frequent in particular for young people (12.2%), graduates (23.7%) and students (17.1%).

There was an evident difference in response between men and women; in particular women were unable to express any opinion regarding the causes of the death of the tree (31.6% vs 12.0% for men) and in 42.4% of the cases the observers gave the wrong answers (#3–#8). A large majority of male respondents gave a correct answer with only 12.0% not responding. This is consistent with the fact that men and women also had different attitudes towards the cause of the death of this tree (or men have a greater ability to express one's opinion). Many studies have reported a different relationship between gender and kind of response (Serpa and Muhar 1996; Hitchmough and Bonugli 1997; Dunnet and Qasim 2000; Knez 2001) because there are differences in the perceptive and cognitive systems of women and men often resulting in differing statements: male persons are usually more trained in geometrical reasoning than females and more frequently instructed to use the left hemisphere of their brain (Naor 1985). Answers differed between young people (ages 12–19), and over 20 who gave higher ratings to disease versus other suspected causes. This result showed that adult participants prefer to express their opinion even if wrong than to not respond or say "*I do not know*"; on the contrary, young people have the opposite behavior. There are differences in answers based on occupation; in particular students represent a homogeneous age group, and the variability of their social backgrounds is usually smaller than that of society at large, in fact students tended to give higher ratings to no correct answer (66.3%) or no response (17.1%), than other respondents.

Previous research has shown that a subject's personality, cultural, and occupational backgrounds have an influence on their

Table 2. The responses to the open question "What could be the cause of the death of this tree?" Suspected causes (answers): 1: a disease; 2: I do not know/no response; 3: water shortage; 4: pollution; 5: bad management (pruning); 6: age; 7: adverse climatic factors; 8: others (include vandalisms, insects, wind, thunderbolt, soil defects). For details of levels of variables, see Table 1. All χ^2 tests are significant for $P < 0.01$.

		Answers, %									
Variables & levels		*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	Σ %	χ^2
Gender	Men	43.8	12.0	8.6	13.6	8.4	3.4	2.6	7.6	100.0	
	Women	26.0	31.6	11.7	4.3	5.2	10.4	2.0	8.8	100.0	
	Avg. %	*35.5*	*21.2*	*10.1*	*9.2*	*6.8*	*6.7*	*2.3*	*8.2*	*100.0*	*22.9*
Age	15-19	17.7	43.5	2.0	18.4	4.0	8.2	1.4	4.8	100.0	
	20-30	40.0	19.2	10.0	5.6	3.7	5.6	3.7	12.2	100.0	
	31-50	39.8	8.0	15.6	4.3	12.3	6.2	2.2	11.6	100.0	
	50+	36.3	24.7	8.8	13.0	6.2	7.6	1.6	2.0	100.0	
	Avg. %	*35.5*	*21.2*	*10.1*	*9.2*	*6.8*	*6.7*	*2.3*	*8.2*	*100.0*	*85.6*
Education	Junior	12.7	41.8	7.6	8.8	7.6	2.5	10.1	8.9	100.0	
	High	42.9	18.8	12.5	9.5	7.2	3.7	1.8	3.6	100.0	
	Degree	19.1	21.1	2.6	8.2	5.7	18.6	1.0	23.7	100.0	
	Avg. %	*35.5*	*21.2*	*10.1*	*9.2*	*6.8*	*6.7*	*2.3*	*8.2*	*100.0*	*135.6*
Occupation	Housew.	29.1	32.4	8.8	4.9	6.9	9.8	1.6	6.5	100.0	
	Retired	39.1	20.2	6.6	7.6	5.4	4.3	3.8	13.0	100.0	
	Student	16.6	17.1	9.9	17.2	9.4	9.9	2.8	17.1	100.0	
	Profess.	56.2	13.9	6.9	13.9	4.2	2.1	2.1	0.7	100.0	
	Manual	45.4	9.1	25.4	5.4	9.2	2.8	1.8	0.9	100.0	
	Other	68.4	15.7	0.0	5.3	5.3	5.3	0.0	0.0	100.0	
	Avg. %	*35.5*	*21.2*	*10.1*	*9.2*	*6.8*	*6.7*	*2.3*	*8.2*	*100.0*	*176.1*

perceptions (Macia 1979; Talbot and Kaplan 1984; Abello and Bernaldez 1986; Strumse 1996; Madge 1997; Lutz et al. 1999; van den Berg et al. 1998). Since personal attributes such as gender (Serpa and Muhar 1996; Sanesi et al. 2006), age (Todorova et al. 2004), occupation (Mutz et al. 2006), and education (Bennet and Swasey 1996; Balram and Dragicévic 2005; Schroeder et al. 2006) have been reported to affect an individual's opinions. Few studies examines the public perception of plant disease; Patel et al. (1999) focused how society defines forests and, in particular, forest "health" and this research provides a starting point for exploring commonalties and differences in scientific and societal views of this question. In the field of environmental evaluation, a main broad distinction (e.g., see Gifford 2002) has been done between: a) "expert" or "technical" evaluation, based on either objective physical measures or expert judgements; and b) "lay" or "observational" or "subjective" evaluation, based on users' observation and perception and influenced by place experience. The research literature on environmental lay evaluation has mainly reported a distinction (see Bonnes and Bonaiuto 1995; Gifford 2002) between environmental appraisal, which is more "person-focused," and environmental assessment, which is more "place-focused"; in fact in the first case the evaluation pattern can be considered as the result of analytic process of knowledge which are coded in particular technical and scientific domains, whereas in the second case it can be viewed as result of daily psycho-social processes of knowledge, interpretation, and experience of the environment by the persons who use it. In our study, we observe a discrepancy between experts (phytophatological diagnosis) and layperson's assessment (only in 35.5% of cases, the respondents give a correct answer). Such outcome is consistent with previous research findings (Bonnes and Bonaiuto 1995; Bonaiuto and Bonnes 2002; Bonaiuto et al. 2006) that reported a disagreement between expert and layperson assessment in the case of urban green areas from Rome, Italy.

Q4: "Are You Aware That a Diseased/Dead Tree May Collapse and Make Injuries to People or Property?"

This question had a multiple response format. The following options were given: Yes, No, No reply. Frequency analysis of the answers shows that a very large majority of respondents (86.2%) were aware of the risks, versus a mere 6.6% of void replies, and 7.2% of negative responses. Damages to manufacts (e.g., parked vehicles) and severe injuries to people due to the collapse of trunks or branches of diseased trees have been reported frequently by media outlets.

Q5: "Do You Have any Suggestions to Give Your Administrators Concerning the Management of Public Greenery?"

At the end of the interview, the respondents were asked to articulate their personal thought and give suggestions to their administrators concerning the present status of public greenery. Answers containing similar concepts or meaning were considered as addressing the same underlying motive, and thus grouped under the same representative theme, as reported in Table 3. It is evident how a large fraction of respondents (46.0%) consider care and maintenance the critical issues of public greenery management, especially men (55.1%), over 50 (55.8%), graduated and employed people (professional 57.6% and manual 60.9%) and in particular there was a clear progression with age: from young people (29.9%) until over 50 (55.8%). Suggestions and proposals include a key theme, such as better qualification and technical professional formation of the personnel involved in cultural practises (mainly pruning of trees), more "quality" in the operational procedures, more financial investments, and more manpower involved. Surprisingly, 42.9% of the respondents had no suggestion (or criticism) to give the local administrators concerning the management of green areas. Again, young people (58.5%), scarcely educated respondents (55.7%)

Table 3. The responses to the open question "Do you have any suggestions to give your administrators concerning the management of public greenery?" Key to answers: 1: improve maintenance and care; 2: no suggestion/no response; 3: proper selection of plants 4: others (include more cleaning and surveillance, better design and planning, more flower plants, control of dogs and problematic birds, pollution control, reclamation of abandoned areas, more spaces for children and pedestrian precincts). For details of levels of variables, see Table 1. All χ^2 tests are significant for $P < 0.01$.

Variables & levels		Answers, % *1*	*2*	*3*	*4*	Σ %	χ^2
	Men	55.1	36.7	5.0	3.2	100.0	
Gender	Women	35.7	49.8	5.2	9.3	100.0	
	Avg. %	*46.0*	*42.9*	*5.1*	*6.0*	*100.0*	*9.2*
	15-19	29.9	58.5	7.5	4.1	100.0	
	20-30	48.1	37.4	3.8	10.7	100.0	
Age	31-50	43.5	43.1	7.2	6.2	100.0	
	50+	55.8	39.4	2.8	2.0	100.0	
	Avg. %	*46.0*	*42.9*	*5.1*	*6.0*	*100.0*	*24.9*
	Junior	19.0	55.7	15.2	10.1	100.0	
Education	High	47.5	41.9	3.9	6.7	100.0	
	Degree	51.5	41.2	5.2	2.1	100.0	
	Avg. %	*46.0*	*42.9*	*5.1*	*6.0*	*100.0*	*46.2*
	Housew.	45.8	49.0	2.0	3.2	100.0	
	Retired	45.7	45.7	3.3	5.3	100.0	
	Student	27.6	55.3	6.1	11.0	100.0	
Occupation	Profess.	57.6	26.4	9.7	6.3	100.0	
	Manual	60.9	27.3	7.3	4.5	100.0	
	Other	52.6	15.8	15.8	15.8	100.0	
	Avg. %	*46.0*	*42.9*	*5.1*	*6.0*	*100.0*	*102.0*

and students (55.3%) were the most represented demographic levels in this group. One respondent out of 20 is interested in a better selection of ornamental plants, with special regard to a larger diffusion of autochthonous flora and of flower plants.

CONCLUSIONS AND RECOMMENDATIONS

Plants of urban parks and boulevards offer a pleasant living environment and recreation opportunities, improving people's mental and physical health. It seems almost superfluous to point out the many and important functions performed by plants in a city; from their ecological functions, such as improving the micro- and meso-climatic conditions, capturing air pollutants, and creating noise and visual barriers, to their positive psychological benefits to the citizens, as well as their aesthetic and historical value (Platt et al. 1994; Avissar 1996; Mage et al. 1996; Attore et al. 2000). Henwood and Pidgeon (2001) showed the importance, significance, and value to people of woods and, in particular, of trees, making special reference to the symbolic space they occupy in people's local community and cultural environments.

However, sometimes they involve external costs, consisting in damage to property, caused by extensive root systems, or injuries to people caused by falling branches from windfall. In fact, the peculiar characteristics of the city environment place trees in a difficult and precarious condition: buildings tend to concentrate solar radiation so as to hinder normal leaf transpiration; asphalt rapidly conveys rain into the sewers, reducing the rate of regeneration of the soil water resources; and air contains great quantities of pollutants which often reach concentrations harmful to plants (Kjelgren and Montague 1998). To all this, the direct consequences of man's action must be added; damage caused by cars during parking maneuvers, by road construction around the trees, and by acts of vandalism. Overall attitudes of residents to street trees may be not entirely positive (Hitcmough and Bonugli 1997). Several pathogens (e.g., fungi) induce severe decline and occasionally kill trees; this increases these risks, and proper management strategies are required to assess tree hazard (Lonsdale 2001).

Appleton (1975) proposed that trees occupy a special significance aesthetically because they provide a handy way for an individual to gain a more satisfying view of the surroundings; for this reason the main goal of this study was to show how the presence of a dead evergreen tree in an urban environment is perceived by citizens. Our respondents reported little difficulty in identifying the (obvious) differences between the dead tree and other conspecific normal individuals, and 86.2% were aware of the risks connected with the collapse of unhealthy trees. Differences amongst genders, age groups, educational levels, and occupation were observed concerning the supposed cause of the death (actually due to a fungal rot disease). Environmental pollution was indicated as the culprit mainly by young people. There is plenty of evidence of general public concern with regard to air quality issues, and this is likely to be the environmental issue of most concern in the future (Beaumont et al. 1999).

Finally, and surprisingly, 42.9% of our respondents were unable (or unavailable) to give suggestions to administrators and policymakers concerning the management of public greenery; this was particularly true for young people and students. Based on these results, it is felt that more attention should be paid at all levels of education to increase the awareness of the importance of the role of greenspaces in improving the quality of life in urban environments.

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Résumé. Les espaces verts urbains sont essentiels pour la santé et le bien-être des citoyens et la présence des arbres et un élément clé pour la qualification et l'amélioration des environnements urbains. Mais les arbres peuvent devenir un facteur de risques pour les citoyens lorsqu'ils sont malades, dépérissants ou morts. Le commun des gens est généralement peu préoccupé des causes intimes des maladies sur les végétaux. En se basant sur un échantillon équilibré de 944 entrevues détaillées menées dans un cadre structuré par des étudiants universitaires, une enquête a été menée afin de suivre la perception des citoyens face à des conifères ornementaux (*Quercus ilex*) tués par une maladie racinaire. La plupart des entrevues ont été menées auprès de promeneurs habituels ou occasionnels de la rue. La plupart des répondants ont été capables de reconnaître les différences entre un arbre mort et d'autres variables normales et communes entre les individus, et 86,2% étaient conscients des risques associés à la chute d'arbres malades. Des différences entre les sexes, les groupes d'âges, les niveaux d'éducation et les professions étaient observées à propos de la causes supposée de la mortalité (...imputable à une maladie fongique racinaire). La pollution environnementale a été citée comme la cause principale par les jeunes gens. De manière surprenante, 42,9% des répondants étaient incapables (ou non disponibles) pour donner des suggestions aux administrateurs concernant la gestion de couvert végétal public.

Zusammenfassung. Urbane Grünzonen sind wichtig für die Gesundheit und das Wohlbefinden der Anwohner. Die Anwesenheit von Bäumen ist ein Schlüsselelement für die Qualifikation und Verbesserung urbaner Umwelt. Aber viele Bäume werden zu einem Risiko für die Anwohner, wenn sie krank, absterbend oder bereits tot sind. Gewöhnliche Menschen sind sich nicht bewusst über die Ursachen von Pflanzenkrankheiten. Basierend auf einer Auswahl von 944 ausführlichen Interviews, die in einem strukturierten Format von Universitätsstudenten erstellt wurden, wurde eine Umfrage vorbereitet, die Wahrnehmung immergrüner Pflanzen, die durch eine Wurzelkrankheit abgestorben, durch die Anwohner aufzuzeichnen. Die meisten Interview-Partner waren mit dem Standort vertraut oder frequentierten ihn gelegentlich. Die meisten der Teilnehmer waren in der Lage, die Unterschiede zwischen der toten Pflanze und anderen Pflanzen zu erkennen und 86,2 % waren sich der Risiken des Kollapses ungesunder Pflanzen bewusst. Unterschiede zwischen den Geschlechtern, Altersgruppen, Bildungsgraden und Berufstätigkeit wurden im Zusammenhang mit dem unterstellten Grund des Absterbens (wegen einer Wurzelerkrankung) beobachtet. Umweltverschmutzung wurde überwiegend von jungen Leuten als Grund genannt. Überraschenderweise waren 42,9 % der Teilnehmer nicht in der Lage, Vorschläge zum Management des öffentlichen Grüns zu machen.

Resumen. Los espacios verdes urbanos son esenciales para la salud y el bienestar de los ciudadanos y la presencia de árboles es un elemento clave para la cualificación y mejoramiento de los ambientes urbanos. Pero los árboles pueden convertirse en un factor de riesgo para los citadinos cuando están enfermos, en declinación o muertos. La gente común está usualmente inconsciente de las causas últimas de las plantas enfermas. Con base en una muestra balanceada de 944 entrevistas detalladas, realizadas con un formato estructurado por estudiantes universitarios, se llevó a cabo una encuesta con el fin de monitorear la percepción de los ciudadanos de plantas ornamentales (*Quercus ilex*) muertas por un enfermedad de las raíces. La mayoría de los entrevistados eran visitadores frecuentes del lugar, capaces de reconocer la diferencia entre árboles muertos y otros individuos normales, y el 82.6% eran conscientes de los riesgos conectados con el colapso de los árboles enfermos. Se observaron las diferencias entre géneros, grupos de edad, niveles educativos y ocupación en relación a la posible causa de la muerte (debida a enfermedad fungosa de la raíz). La contaminación ambiental fue indicada como la principal culpable por la gente joven. Sorpresivamente, el 42.9% de los encuestados no fue capaz de dar sugerencias a los administradores concernientes al manejo de la vegetación.