



Impacts of recreation, Panshanger Park.
Dr Ronni Edmonds-Brown

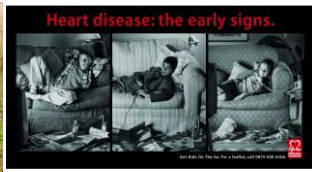
Issues under discussion.

- Local Area of high Biodiversity.
- Reason for this? Former SSSI. Has been isolated.
- Now park is open to the public can we expect change? Are we seeing that change? Can we measure it?
- What sorts of recreational impacts are we concerned about?
- Main sensitive areas
- Solutions?

- *About one third of adults in England have little or no contact with the natural environment & many more only have occasional contact: especially young, ethnic minorities, low incomes.*



<http://healthizmo.com/walk-your-way-to-christmas>



Benefits

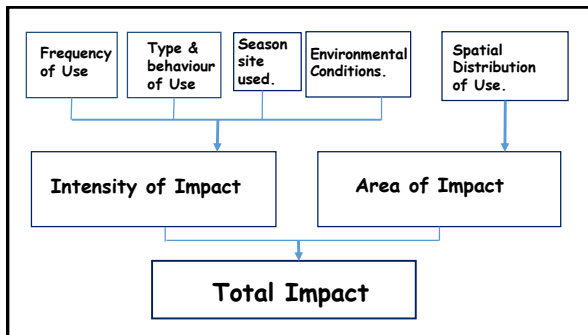
- **PHYSICAL HEALTH.**
- Obesity levels have doubled in last 10 years for 6 year olds - and trebled for 15 years olds. Obesity costs the national economy £7 billion per year.
- 70% of the population are not active enough to benefit their health. Doubles risk of diabetes, heart disease, stroke and bowel cancer.
- **MENTAL HEALTH.**
- Rising cases of mental ill health: Reports of emotional and hyperactive problems in children have increased from 6.4% to 14%
- Dramatic increase in drugs consumption:
- Increase in use of anti-depressants and costs to national economy of mental sickness are £23 billion a year.



"The countryside provides people with that vital sense of freedom and escape from the pressures of everyday life"

Who are the Park users?

- Local people
- Families
- Environmental education users (Forest school, Festival of Wildlife)
- Health users - Park Run
- Volunteer groups. Riverfly; recorders; conservation groups.
- Animal life - sheep, Konigs (grazing management).
- By far the largest group are dog walkers.



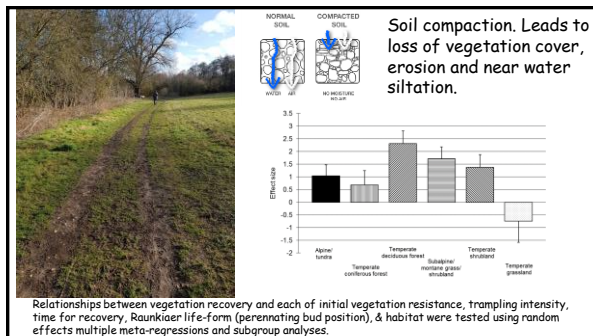
What sort of impacts?

- Soil compaction - vegetation loss, erosion & siltation of waters.
- Habitat degradation.
- Disturbance - physical and noise. Causing stress responses. Reduction in breeding success. Mobile species may move out of an area.
- Diversity declines.

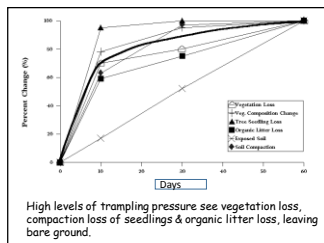
Evidence for this?

Plenty!

In addition to having areas separated off from the public used as a comparison.

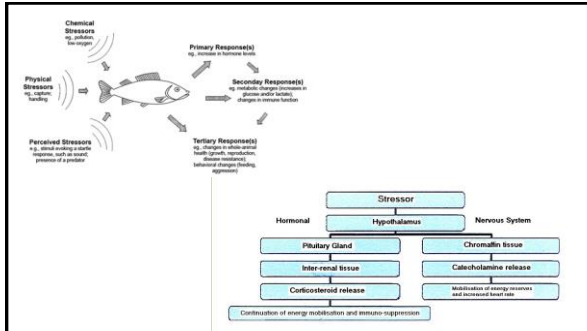


Frequency of use

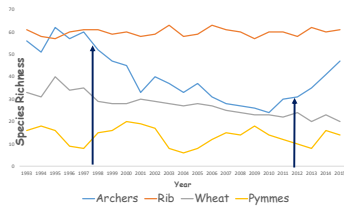


Disturbance

- **Physical.**
- Sedimentation, alteration & degradation of habitat.
- Interferes with range of species responses.
- **Noise.**
- Avoidance behaviours - high energy expenditure incurred.
- Stress response increased, leads to higher mortality.
- **RESULT.**
- Loss of habitat integrity and loss of biodiversity.

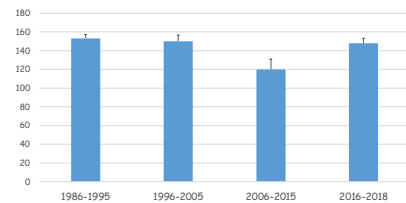


Lower Mimram Walk



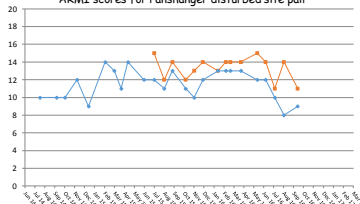
Species Richness of 3 Hertfordshire chalk river sites & an urban site. Archers Meadow upstream of Panshanger Park is used as a **pseudo replicate** the area between the arrows relates to the period of public pressure; the River Rib site is a clean undisturbed section of chalk river, and the upper River Lee at Wheatthampstead experiences high visitor pressure, in particular from dog walkers. Pymmes Brook in Barnet is heavily impacted by a variety of disturbance and experiences urban runoff issues. (Data source: Edmonds-Brown-unpublished).

BMWP



Mean & SE of BMWP scores for Archers Meadow. 2006-15 public access sees a drop in scores. 2016 to date seeing signs of recovery.

ARMI scores for Panshanger disturbed site pair



Comparison of ARMI scores on sites impacted (blue) and undisturbed (red) by visitors, Panshanger Park Riverfly recording. The ARMI scores in the undisturbed site are consistently higher. (Data source Robin Cole).

Dog Walking

- A reason many get out & walk.
- Around 5% spoil it for everyone else!
- Lots of dogs off the lead. Owners can be aggressive.
- Three 2 hour counts in since January 2018.
- Dog walkers = 37; 29; 41 seen during circuit of site.
Of which 64% were off the lead.

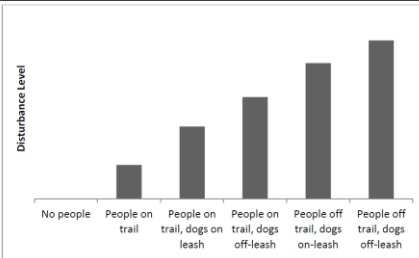
Impact of dog walking

- More than 4,000 attacks by dogs on sheep per year (England & Ireland). Dog control / use of a lead.
- Dogs like water!
- Disturbance / sedimentation & dog flea treatment - all potentially harmful.



Several attacks on sheep by dogs at Panshanger. Owners abusive when requested to put their dog(s) on a lead.

Current research on toxicity of dog flea treatments to aquatic macroinvertebrates at UH.



Relative impact on wildlife from people with and without dogs.

Source: Silva-Rodrigues et al. & Hennings L (2016) Impact of dogs on wildlife and water quality. Literature review for Parks and Nature.



Area of restricted access.

Banks intact.
No erosion.
Little silt in channel.
Chalk gravel available to invertebrates.
Natural plant communities.
No disturbance.
Good fish populations.
Good breeding populations of bullheads, grayling and brown trout.





Environmental Impacts of Recreation in Parks and Reserves. Ralf Buckley (1991).

[Perspectives in Environmental Management](#) pp 243-258

- 'Typical impacts.... include soil erosion & compaction, damage to vegetation, disturbance to wildlife, water pollution, increased fire frequency, vandalism & noise. To minimise the environmental degradation associated with tourism and recreation may require: **appropriate land-use zoning; regulation and surveillance of access & activities; direct physical protection of particular areas; and education both on-site and elsewhere.** In addition it is important to provide incentive to encourage low-impact types of recreation.....'

Comes down to Trade Offs

- Visitor numbers increasing year on year.
- Full access or a few areas where access is restricted?
- Do you want to be able to walk your dog everywhere or do you want to know the site maintains high biodiversity?
- Particular concern for the water vole population. Seen 90% decline in numbers. This is one of the best sites for water voles
- The water vole and its burrows are both protected by law.
- It is illegal to kill, injure or take one from the wild. It is also illegal to intentionally or recklessly damage or disturb the places they use for shelter. This protection is afforded by the WL&C Act 1981 (amended).

Do you want to be left with a legacy of



River Mimram - undisturbed. Photo Robin Cole 2015.



Trent Park Country Park. Old Sassoon estate.

This?

Or this?



Trent Park.

Loss of riparian vegetation - bare banks & full of filamentous algae. A sign of high levels of eutrophication.

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