Garbage Disposal and Recycling Issues: Contemporary applications of human paleoecology

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Introduction

Human Paleoecodynamics (HPE) is the interaction between the environment and human populations where concern is placed on understanding the dynamic interactions between human-modified landscapes and the environment (Kirch, 2005).

How archaeologists view these interactions are through the material remains humans leave behind on the landscape. The material remains are the components which forms the archaeological record. The pattern in the record is emergent, meaning that the material remains are not one event but rather the accumulation of multiple events of human behaviour through space and time.

Archaeologists can use the material record to reconstruct pre-historic human behaviour based on human discard patterns within the landscape.

Problem

Contemporary societies are facing a garbage crisis (Rathje and Murphy, 1992). There is a growing issue regarding the lack of available space for landfills, and therefore how rubbish is going to be disposed of in the future. The reason for this crisis is due to contemporary society being disconnected from the rubbish (Kennedy and Kennedy, 2007), thereby being disconnected from the effects rubbish has on the landscape. The behaviour of society towards rubbish is the “out of sight, out of mind” notion which needs to change as populations are producing too much waste for it to be sustainable in the future.
Disposal of material (rubbish) is not something new as humans have been doing it for millennia. Basic methods of rubbish disposal are dumping, burning, recycling and minimising waste.

Context

Mobile hunter-gatherers disposed of rubbish by leaving material where it fell. This method of disposal was acceptable given their mobility and the organic nature of their waste. Sedentary groups, however, developed problems with disposal because dumping material where it fell was not convenient any longer. This is due to sedentary behaviours limiting disposal to a finite area causing past societies to have to think differently as to how rubbish is organised and removed from living spaces.
Sedentary societies are not active in areas of rubbish abandonment but rather transport them from the area of use to a designated location for material discard (Figure 1) thereby changing the landscape of the dumping site over time.

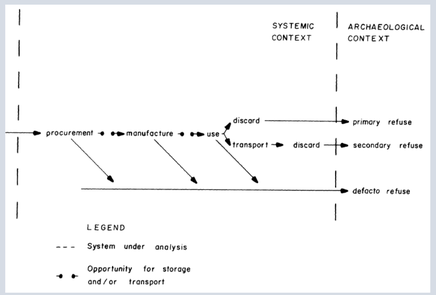


Figure 1. Showing different refuse disposal patterns. Emphasis is put on secondary refuse as it is transferred away from the area of activity to be deposited elsewhere (Schiffer, 1972).

Solution

Implementing archaeological techniques and principles through means of archaeological survey, sampling, and classification within landfills, allows for greater understanding of past societies as well as anticipating future directions in waste management.
Using some archaeological principles will be conducive to behavioural changes in garbage treatment, thereby shifting focus to other disposal techniques such as recycling and minimising waste. In treating contemporary waste through the same ways in which the archaeological record is treated, archaeological methods can be used to offer insights into issues of contemporary waste disposal.

University of Idaho

Using archaeological methods devised by William Rathje to look at contemporary rubbish disposal and what is being thrown away, the University of Idaho have utilized his techniques to understand and educate students on modern disposal patterning within campus grounds (Rathje and Murphy 1992).

- University of Idaho recycles 19% of their waste
- The community of Moscow recycles 11% of their waste
- The state of Idaho recycles 8% of their waste – national average is 25%

Contextualizing the issues of discard patterns at the University of Idaho emphasised waste-minimization at local levels which will in turn have greater impacts in the wider regional context. Analysis of surface collections at different campus zones (Figure 2) were reported upon (Camp, 2010). For the purpose of this report evidence will concentrate on the zones 1 (parking lot) and 3 (library and quad).

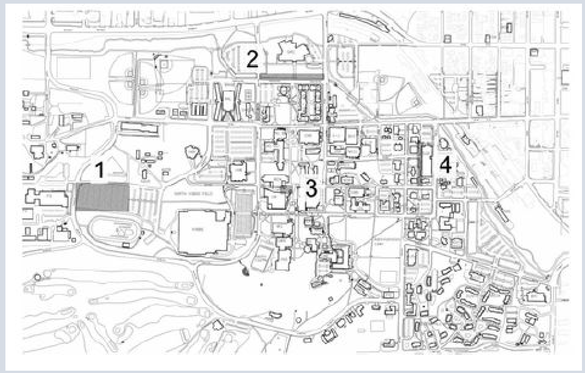
Library quad

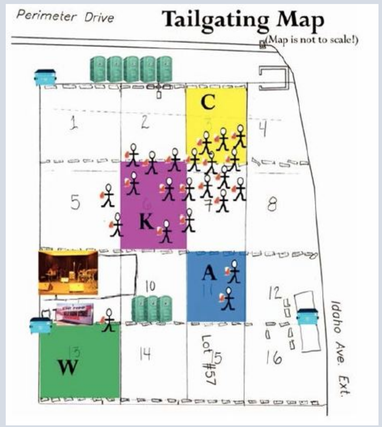
- Cigarettes and Cigarette butts (864 artefacts total) – improperly disposed of.
- Students used ethnographic and archaeological techniques to document students.
- Findings suggest students are ignoring the facilities put in place for the disposal of cigarette butts.

Car lot

- 388 artefacts were recorded and 298 (76%) of the artefacts recorded were related to alcohol consumption.
- Location of rubbish bins are found at the edges of activity resulting in the combination of location, size and colour of dumpsters combined with intoxicated patrons, contributes to increased discard patterns.

Further analysis divided the area into quadrants (figure 3) and revealed that the concentration of human activity was located in quadrants 6 (K), 3 (C), and 7.
Issues discussed within this case study, through the analysis of discard patterns and ethnographic observations of university students, have provided an avenue by which campus policy initiators can implement new waste management techniques. This to reduce the amount of discard found at the university level and can have larger impacts at a regional scale if demonstrated correctly.





Above: Figure 2. showing the locations in which the study was conducted. Right: Figure 3. showing the spatial perimeter of the car lot where rubbish was deposited (Camp, 2010).

Fresh Kills

A multi-disciplinary approach was used to investigate the archaeological contents, chemical makeup, and microbial action within the refuse. The materials sampled were used to represent discard patterns of contemporary societies (Figure 4). Analysis of the landfill found materials thought to be readily biodegradable persist for a long time within landfills (Suflita et al., 1992). Archaeological analysis of the contemporary landfill allowed for the analysis of contemporary human interactions with the landscape. Disposal patterns found within the landfill helped shift behaviours with regards to how garbage is disposed of and recycled. There is a greater shift to reduce, reuse and recycle currently compared to 30 years ago.
Successes of this case study in policy making are as follows:

- Reduction in household waste
- Acknowledgement of landfills being a component within the environment and taking steps to mitigate contaminate leeching
- Proper management of landfills

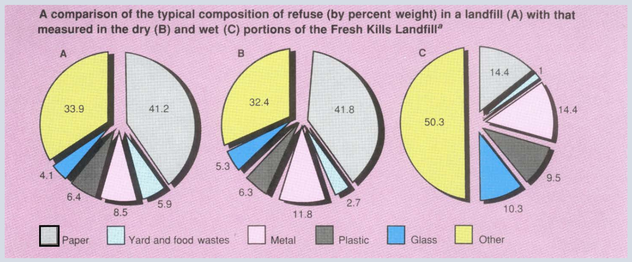


Figure 4. Composition of material from different parts of the landfill. Charts B and C are from wet and dry parts of the landfill whereas chart A is the average composition within a landfill (Suflita et al., 1992).

Conclusion

The case studies that have been presented have been used as examples to help showcase archaeological methods and principles that can be applied to contemporary material deposits. Archaeological applications can therefore inform policy makers on the effects human activities have on the landscape. Changing policies to focus back on the human-environment relationship will slowly start changing human behaviours to reduce drastic changes of the landscape.

References

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