

Quagmire: Revision of a Classic Recreation Resource Management Simulation Game

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Simulation games have been used as an education tool in many fields. From flight simulators to the Model UN, simulations can engage students and increase their learning. Before students became proficient in using the Internet, the Quagmire simulation game, developed by Dan Dustin, was often used to illustrate the complexity of public land management in the United States. Students' increasing Internet proficiency led to frustration as they tried to research management alternatives to a fictional site. Modifying Dustin's Quagmire resulted in the development of an Internet compatible version of the simulation. This simulation is interwoven with class lectures to reinforce key content of a recreation resource management course throughout the semester.

Dustin's Quagmire

Dustin's Quagmire presents students with the challenges of managing a fictional Evergreen National Park described as "an outstanding example of alpine wildland. Within the park's 900 square miles are 63 peaks rising above 11,000 feet." (Dustin, 1977). The location of this park was never specified. Quagmire consists of a sequence of four rounds in which students play the roles of those who can influence public land management decisions: the managing authority, politicians, preservationists, utilitarians, local business owners, the park concessionaire, media, and the local public. Each round of the simulation consists of a scenario and set of management proposals that are debated by the class in a mock public hearing facilitated by the managing authority. The scenarios build upon the decisions made in the previous round, presenting the class with the probable consequences of their decisions. By the final round of Dustin's simulation, use of Evergreen has escalated and the managing authority is faced with environmental degradation or imposing limits on the number of park visitors.

Quagmire Revised

The revised Quagmire differs from the original in the site managed in the simulation, the concepts illustrated by the scenarios, and the use of the Internet. It maintains the key benefit to using simulations: it assists students in understanding the complexity of resource management and requires them to consider a wide variety of factors while attempting to resolve resource management policy decisions.

The key revision to Quagmire is that it now addresses management of an existing site: Headwaters Forest in Humboldt County, California. Since this is an existing site, students can use the Internet to research information about the site, the surrounding com-

munities, and neighboring public lands. Headwaters was identified as an appropriate site for the Quagmire simulation because it is land that recently was acquired by the federal government and the management plan for this site is still being finalized. Any designated national monument could be used as the site in question.

The scenarios are designed to reinforce key concepts in resource management. The first round debates which federal agency should manage the site, thereby emphasizing distinctions between federal land management agencies (text of this scenario is presented below). The second round examines the appropriate level of development within the agency selected. The third round questions appropriate management of hazards in an outdoor recreation site. The final round challenges students to identify the most equitable solution of limiting visitor use of a popular outdoor recreation site.

The Internet has changed the dynamics of Quagmire. Originally, the media played a key role in communicating information to the class, and the decisions made in each round were based on the debate that occurred in class. Now, the Internet allows groups to present their positions to their classmates, debate and even reach compromises outside class time. Blackboard is an excellent tool for facilitating this communication, although email distribution lists could be used if Blackboard is unavailable. The scenarios can be posted as course documents on Blackboard. Each group can post their position statement on Blackboard Discussion Board two days prior to the class debate. The managing authority can post its decision on Blackboard within 24 hours of the class debate. These postings create an opportunity for students to practice writing media releases.

Using the Internet to post position papers has drastically changed the role of the media in Quagmire. This role has evolved into the role of the investigative reporters, who are assigned specific stories that will enliven the class debate but that are rarely discussed by those in other roles. In the first round, the assignment is to research the public lands surrounding the Headwaters site. For the second round, which focuses on the appropriate level of development, the assignment is to profile what managers learned in working to resolve this issue in another site (such as in developing the new Yosemite plan). The third round examines hazard management, so the assignment is to investigate hazard management in another site (such as human-bear interactions in Yosemite). The assignment for the final round is to identify sites requiring fees, reservations, or other mechanisms used to limit use.

The remaining roles played by individual students are almost identical to those in Dustin's Quagmire. The politician is one student, nominated by any member of the class and elected through a secret ballot. Many students distrust politicians and disdain this role, so discussion of positive aspects of being a politician is essential to generating nominations for this role. Once elected, the politician appoints five people to the managing authority. The remaining students in class are assigned roles as preservationists, utilitarians, local business owners, the park concessionaire, investigative reporters, and

the local public. The number of students assigned to each role varies with the size of the class. Approximate numbers are:

Role	25	35	45
Politician & Managers	6	6	6
Preservationists	5	6	10
Utilitarians	5	6	6
Local Business	2	4	4
Park Concessionaire	2	2	4
Investigative Reporters	2	4	4
Local Public	3	7	11

Learning Outcomes

There are three distinct learning outcomes from Quagmire corresponding to three graded assignments for a recreation resource management class. The first outcome is that students practice writing media releases designed to shape public opinion surrounding a resource management controversy. The position papers posted before each round of Quagmire are assigned to specific members of each group, so each student is required to post once in the semester. Members of the managing authority post their decision announcement, and the politician posts a re-election statement. In this way, each student is assigned a short paper designed to shape public opinion.

The second outcome is students will gain a better understanding of the strategies that are and are not successful in shaping management policy. Throughout the course of Quagmire, students experience simulated debate about management policy. The simulation illustrates the success and failure of various strategies. For example, Quagmire illustrates to students how easy it is when one is under pressure to make an impromptu comment that opposing groups can use to their advantage and how irreversible such comments can be. Quagmire also demonstrates how the outcome of meetings can be influenced by the order in which groups are allowed to present their arguments and that a simple request to speak first or last can significantly change the outcome. After the conclusion of the final round, each student writes a short reflection paper analyzing the strategies that were and were not successful in shaping management policy.

The final outcome of Quagmire is that students are able to see the parallels between Quagmire and an existing resource management controversy, including understanding the stakeholders involved in the controversy, their strategies for shaping policy, and the impact of their strategies on the outcome of the controversy. Students write a research paper analyzing an existing controversy. Although references to Quagmire are

not required in the paper, the impact of Quagmire on students' understanding of complex controversies is apparent. Many students comment that their research topic is just like Quagmire and that they understand the issue better because they can see who is playing each of the roles included in Quagmire.

Infusing Quagmire into Resource Management

Quagmire can be infused into a resource management course by conducting a Quagmire class meeting every third week of class. In the second or third week of class, Quagmire can be introduced, the students assigned their roles, and the first scenario presented. Three weeks later, the first class debate can be conducted. In this way, two weeks of lecture is followed by a Quagmire debate applying the lecture content. The first weeks of class address the history and evolution of resource management, and the mission of each federal land management agency. This information is applied in deciding which agency will manage Headwaters. The next two weeks of class address site management and area planning which is applied in determining the appropriate level of development in Headwaters. Lectures then address hazard management, wildlife management, and information services, followed by a Quagmire round debating management of wildlife and other hazards in Headwaters. The impacts of over-use, the final round of Quagmire, which asks students to determine how to limit visitor use of Headwaters, follows methods of distributing visitor use, and equitable allocation of recreation services. Ideally, Quagmire will conclude by the tenth week of a fifteen-week semester.

The Quagmire simulation game developed by Dan Dustin has always been the highlight to my recreation resource management class. So much so that the class is commonly referred to as "The Quagmire Class." When the Internet made it difficult to continue to use a fictional site, the simulation was revised to be Internet compatible. This has increased students' level of learning while it simultaneously increased their enjoyment of the Quagmire simulation.

Round One Scenario

The first round of Quagmire was developed based on a Department of the Interior media release (<http://www.doi.gov/news/990302.html>). In September, 1996, the federal government and California negotiated an agreement to purchase from Pacific Lumber of 7,500 acres of redwoods in the Headwaters Forest in Humboldt County, Calif. The Headwaters transaction includes the purchase for the public of the world's largest remaining stand of old-growth redwoods which had still been in private ownership; it includes about 3,000 acres of old-growth redwoods, many of which are more than 1,000 years old and more than 300 feet high. In addition, about 4,500 more acres of redwoods will be acquired as a "buffer" zone.

The purchase required \$380 million (\$250 million from the federal government and \$130 million from California) to acquire the Headwaters Forest from Pacific Lumber and from the Elk River Timber Co., which owned an adjoining parcel. The federal

money was contained in an appropriation bill passed by Congress in October, 1997. The state money was approved by the California legislature last Aug. 31. In addition to the \$130 million for the Headwaters purchase, the legislature also provided \$100 million in additional funds to buy additional lands at Owl Creek and Grizzly Creek, which are located within the area of the Pacific Lumber.

“The protection of these magnificent trees is a tremendous achievement. It is a wonderful gift to the people of this nation and to future generations,” said Interior Secretary Babbitt. “This has been a long and arduous process but the result is excellent... The agreement is good for everyone. It allows the company to meet its economic goals, and it will protect the species we need to protect under the Endangered Species Act.” (These species include the marbled murrelet, a small bird that lives in old-growth redwoods, and coho salmon).

The Headwaters Forest is located in Humboldt County, California, about 250 miles north of San Francisco. The chief public access to the Headwaters will be from the southwest, off U.S. Highway 101, the main federal north-south highway in the region.

The Headwaters Forest was originally intended to be co-managed by the Bureau of Land Management and the State of California. [All preceding information in the scenario is factual. The remainder of the scenarios is fictional.] However, this co-management arrangement is proving ineffective. The land will now be placed under sole control of one public land management agency. The managing authority must make a decision about which public land management agency is most appropriate to manage this property. It is important to keep in mind that the managing authority will then become a part of that land management agency and will have to abide by the agency’s mandate.

In response to this need for a more efficient management structure, the Managing Authority has recruited a planning team to do a feasibility study of alternative solutions to this problem. This planning team has generated three proposals for the Managing Authority’s consideration.

1. Convert the property to Headwaters National Park, managed by the National Park Service
2. Convert the property to Headwaters National Forest, managed by the National Forest Service
3. Convert the property to the Headwaters Region, managed by the Bureau of Land Management.
4. Convert the property to the Headwaters Preserve, managed by the U.S. Fish and Wildlife Service

Useful websites about Headwaters Forest

BLM Headwaters Forest Home Page

<http://www.ca.blm.gov/arcata/headwaters.html>

BLM Headwaters fact Sheet

http://www.ca.blm.gov/arcata/headwaters_factsheet.html

Headwaters Forest Expansion

<http://www.headwatersforest.org/about/index.html>

Bay Area Coalition for Headwaters Forest

<http://www.headwaterspreserve.org/>

References

Dustin, D. L. (1977). Gaming-simulation in the college classroom: an assessment of Quagmire as a recreation resource management game. Thesis—University of Minnesota.