NICE TO KNOW

Rapid Prototyping: Deschutes National Forest - Part 2

Tony Starfield

recorded: March, 2012

So what did I learn from this exercise? Sitting on the plane flying home, I stopped to think and process the week's experience. And I guess the first thing I learned was that it was really fun to work with a focused, engaged group of people working on a real problem. It was fun, but it wasn't easy. It wasn't easy for me as a modeler, and it wasn't easy for them as experts within their particular disciplines. And I guess the push-pull between me as a modeler and them as biologists was that they were interested in everything they knew about the subject, and I was trying to pull out the key elements from the point of view of addressing the problem.

And if you think about it, that push-pull, that process of pulling out the key elements, is really what makes modeling important, and is what was missing from their discussions before. And so I came up with a kind of heuristic of whenever you are working with a problem, what you need to do is find the skeleton that is going to lead to your first prototype. **So the heuristic is, "Look for the skeleton in every problem."**

And once upon a time, I was talking about this and somebody came up with a comment saying, "Yeah. Look for the skeleton in the jellyfish." And everybody had a good laugh, but in point of fact, that was a really interesting comment. Because even if you're dealing with a problem that has no obvious skeleton, it's your job to put a skeleton in. And how do you put a skeleton in a jellyfish? Well, that depends on what you're trying to do with the jellyfish. **So the objectives of the model determine the skeleton.** So that was the first point.

And tied in with the concept of finding the skeleton and focusing on that, was the idea of, "We've got to do a first prototype." So I guess the second point **was how important it was to prototype.** And if I hadn't had the concept of prototyping, there would have been no way to deal with this dialectic between keeping the model simple and the anxiety on the part of everybody else about what was not in the model. So for me to be able to say, "This is just the first prototype and we need to get it working," was a really important thing to be able to say. Because over on the horizon, was the idea that there was going to be another prototype.

Okay. Coming out of the idea of developing a first prototype was **how important it was to actually code it and get the model working.** There's a sea change that occurs between talking about a model and looking at output from a model and changing input on a model on a computer screen. And that sea change is why it's so important to get away from talking about conceptual models as quickly as possible, and get to the point of having a prototype actually working. It focuses the discussion, it focuses the minds, it gets everybody energized.

And in this particular example, as soon as they saw the kind of results that could come out of a model, they were A, committed to modeling; B, came up with new suggestions that they wouldn't have made otherwise; pulled in the managers to show them that they were doing something useful; and as I mentioned, it broke that inability of the deer people to come up with a foraging index. So I could have talked until the cows came home about a foraging index, but as soon as they saw a model, they said, "Ahh, that's what you're looking for."

Okay. Then I learned something interesting from the results of the model. And that was this key point about the deer foraging index being at an unsustainable maximum. And reflecting on that, it suddenly struck me that a lot of problems that one encounters in conservation and wildlife management or resource management turn out to be problems where prior management practices have led to an artificial situation that is, in fact, unsustainable. **And it is only when you start looking at it from a modeling point of view that you realize it is unsustainable, and that is vital.** Because it means you're not going to bust your gut trying to solve a problem that cannot be solved.

Finally, a sort of a postscript on this. Remember we ended the week by everybody stressing again, what had been left out of the model. And so everybody was excited about the prospect of going to a second prototype.

I didn't have any contact with them after that. But a few years later, I was giving a workshop and I was talking about this particular exercise, and somebody said, "Oh, I'm from Bend, Oregon. And I have looked at your model. I've used the code that you wrote." And I said, "I very much doubt that you used the code that I wrote, because everybody was going to be working on a second prototype." So they said, "No, no. It was definitely the code that you wrote." And it turned out they'd never developed a second prototype.

Why didn’t they need a second prototype? Because the first prototype, with its simple conclusions, had broken the logjam in their thinking. It had served precisely the purpose for which they’d pulled me in as a modeler. They wanted to try and focus their thinking.

And so I then came away with a heuristic that you always have to talk to people about a second prototype, but it’s a little bit of a con artist trick. Because very, very often, you don’t need the second prototype.

< 00:08:00 END >