Witness: George Frederic Hrusa

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Called by: People (prosecution)

Phase: Guilt

Examinations: Direct – David Harris; Cross – Mark Geragos; Redirect – David Harris

Day 1 of 1 for this witness

Court: San Mateo County Superior Court, Redwood City (People v. Scott Peterson)

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Direct Examination by David Harris

HARRIS: Doctor, can you tell us who you're employed by?

HRUSA: I'm the senior plant taxonomist for the Plant Health and Pest Prevention Services branch of the California Department of Food and Agriculture.

HARRIS: Okay. I hate to do this, what does all mean?

HRUSA: I perform taxonomic research, that is a plant classification research and I identify plant material that is submitted to the lab in support of internal and external quarantines and county weed control and state weed control efforts.

HARRIS: Now to hold this particular position do you have any background, education or training that allows you to do such?

HRUSA: I have a bachelor of science degree in ornamental horticulture a master of science degree in botany, and a doctor of philosophy degree in plant biology.

HARRIS: And how long have you been employed by the Department of Agriculture?

HRUSA: I've worked for them now for seven years.

HARRIS: I want to direct your attention back to February of 2003. Do you know a gentleman by the name of Rod Oswalt?

HRUSA: Yes, I do.

HARRIS: And is he another state employee that works for the Department of Justice?

HRUSA: Yes, he does.

HARRIS: And did Mr. Oswalt ask you to look at some plant kind of material to see if you could assist him in making an identification?

HRUSA: Yes, he did.

JUDGE: Do you want to qualify him as an expert, is that what you're doing?

HARRIS: I can go deeper into that.

JUDGE: Well, I want to know if Mr. Geragos wants to voir dire him at all. You've heard what qualifications, is there any dispute that this man is an expert qualified to give an opinion?

GERAGOS: No.

JUDGE: Okay. So then go ahead.

HARRIS: All right.

HARRIS: Doctor, did Mr. Oswalt come and show you some items that he was asking you to look at to see if you can identify them?

HRUSA: Yes, he did.

HARRIS: I'd like to have marked two photographs at this time.

JUDGE: No. 159 A and B.

HARRIS: Doctor, let me start to show you 159 A. Do you recognize that?

HRUSA: Well, we spoke about it earlier and so it does appear to be what I looked at, yes.

HARRIS: Okay. Well, let me go back through this. When Mr. Oswalt came out did he have the actual item with him?

HRUSA: Yes, he did.

HARRIS: And did you place it under a microscope to examine it?

HRUSA: Yes, I did.

HARRIS: And does this appear to be a photograph that Mr. Oswalt took of the item that you examined?

HRUSA: Yes.

GERAGOS: Objection, calls for speculation.

JUDGE: Well, he's asking him. Overruled.

HRUSA: It looks like it.

HARRIS: Does this photograph appear to be similar to the one you were looking at under your microscope?

HRUSA: Yes.

HARRIS: Now, when you were looking at this particular item, could you identify at as being some kind of plant material?

HRUSA: Yes, I could.

HARRIS: I'll go ahead. I'll go ahead and put this up. Looking at 159 A, what was it that you saw under your microscope?

HRUSA: The larger broad object that is in the photograph.

HARRIS: What did your examination reveal?

HRUSA: Well, there was more to it than you see right there. The structure came to a tip that ended, and I can't tell if it was to the left or to the right in this picture, but I was able to see that this was a leaf tip of a plant of the family poaceae, that is the grass family.

HARRIS: And I don't know if you can spell that for the reporter.

HRUSA: P-o-a-c-e-a-e.

HARRIS: When you say family of the grass family, if you can give us briefly how you break this down into in terms of botany, how do you know what this is?

HRUSA: Well, grasses have certain structures that are in common, which is what we do when we classify plants, we classify things according to their similarities. And so grasses have a certain series of structures. And if you really look at a lot of grasses, you can also see the difference in textures and the difference in venation types and different trichrome types, that is hairs on the outside of the plants that draw them together that show that they have a common

evolutionary ancestor. This plant, this piece here was specifically notable for the form of the leaf tip which was able to not only tell me that this was a member of the grass family, but was also a member of the genus poa.

HARRIS: And I don't want to say common spelling, but a,

HRUSA: Oh, p-o-a.

HARRIS: Thank you. What is that, what is that species?

HRUSA: Well, the genus poa is a very large genus approximately 500 species that's world wide. Many of them are economic plants. It's one of the primary plants used in turf grasses. There's also a number of weeds that are in that particular genus. Now the genus has a very distinctive tip, but because plants are classified and grasses as well are classified according to their reproductive structures primarily. In this case, we're looking at an angiosperm, so the flowers, we're dealing with the flowers, the structures of the flowers and the growth habit are the primary means of classification in the poaceae and in the genus poa. Now because I don't have any of those structures present on this piece of plant material, the one character of the leave that is distinctive to the genus poa was available and was visible.

HARRIS: Okay. Let me go back through that, make sure that I understand this. When you're categorizing species in this particular area, you need to be exactly specific of what it is you need more of the plant material to get in the flowering aspects you're talking about?

HRUSA: The more characters I have, the more likely I am to be able to identify something to it's narrowest classification group. In this case it would be the species say, for example. It would be like classifying a toe nail off of a mammal, let's say, or a dog, and determine whether that is a dog or a cat, it would be a lot more, it would be a lot easier for somebody to have the entire cat or the entire dog because you can see the different kinds of hairs and the different kinds of teeth and things like that. Plants are largely the same. If you have only one part of the plant, you can maybe say unless it shows a develop specific characteristic that determines a particular species that characterizes a particular species, you need to have more and more characters to narrow it down as to what species, particular species it might be. In this case I've only got the leaf and the leaf tip.

HARRIS: The item that you were looking at, is this the whole plant or was this a fragment?

HRUSA: It was a very small fragment about two centimeters long.

HARRIS: So looking at this approximately two-centimeter long fragment, what could you tell about that fragment?

HRUSA: It was, it had the tip of the leaf on it. So it wasn't a central part of the leaf. We call those blades in grass. Everybody knows when you cut your grass those are blades that come off. It had the very tip. The tip was shaped like a prow, that is the bow of a boat, and that is a distinct feature of the genus poa.

HARRIS: Now from looking at what you saw there of the portion that you had in this distinctive prow thing that you have described, could you kind of characterize it, not the specific species, but more of the general species?

HRUSA: I'm not sure what you mean by the difference between a specific and a general species.

HARRIS: My botany is real bad. So did you refer to this as an annual blue grass?

HRUSA: After looking at this and seeing that it was in the genus poa, I went and looked at spellings I have in the Burem (phonetic) at where I work and I pulled out several specimens of the genus poa that are common plants and that I see on a regular basis that are submitted to me for identification and it matched the very tip of that prow, had the same small kinds of trichomes, little scabious trichome at the bottom of the boat prow underneath the bow that was

in poa annua or the genus, the species, annual blue grass would be a common name for it. I did not compare it to the universe of all plants.

HARRIS: Okay. Now with regards to this kind of the genus of the annual blue grass, is this a fairly common plant?

HRUSA: Annual blue grass is one of the most common plants in central and in western California.

HARRIS: When you say central California, is there any kind of differences where you find this in central California, say the coastal area?

HRUSA: This plant is a plant associated with human activities.

HARRIS: What do you mean by that?

HRUSA: Human disturbance, roadways, walkways, gardens, places where the original native soil has been disturbed. Places where people hike. It's on trails. It's particularly common along the coast where it does very well. It likes the mild climate along the coast. It grows very commonly in the central valley in the cool season.

HARRIS: And when is that?

HRUSA: That would be from the first rains in, say, November until it really starts to heat up. Probably the plants are disappearing around April. It would depend on your local microclimate.

HARRIS: Now with regards to, when are the, just back up. Do you live in the Central Valley?

HRUSA: Yes, I do.

HARRIS: When you were saying when are the first rains usually?

HRUSA: November, approximately.

HARRIS: And is that, the information that you just been describing for us, what was somewhat passed on to Mr. Oswalt from the Department of Justice?

HRUSA: I would assume it was. We talked quite a bit.

HARRIS: Did he have you look at a second item?

HRUSA: Yes, he did. At a different date.

HARRIS: And the second item. Let me show you that. 159 B.

HRUSA: Yeah, that's it.

HARRIS: Okay. I'll go ahead and put that up there. Did Mr. Oswalt also bring you the actual item that we see depicted here in 159 B?

HRUSA: Yes, he did.

HARRIS: Did you look under that or look at that item under your microscope as well?

HRUSA: Yes, I did.

HARRIS: And were you able to tell anybody from a botany point of view about this particular item?

HRUSA: You know, there was no organized, no obviously cell structure. There was no green chlorophyll pigment and I concluded that it was very unlikely and to me was not plant material.

HARRIS: The People have no other questions.

Cross Examination by Mark Geragos

GERAGOS: I'll start with this, your final conclusion, you wrote a letter; isn't that correct?

HRUSA: That's correct.

GERAGOS: You say, "Thus I concluded that the material was not likely to have been part of a vascular plant."

HRUSA: That is correct.

GERAGOS: What is a vascular plant?

HRUSA: That's a plant that has a system of tubes within the plant body that move both water upwards and photosynthate downwards.

GERAGOS: Is there such a thing as a nonvascular plant?

HRUSA: Yes, there are. Algae are nonvascular plants. Mosses are nonvascular plants.

GERAGOS: Okay. Could this be a nonvascular plant?

HRUSA: There was no green tissue in it.

GERAGOS: Okay. Did you eliminate that as a nonvascular plant?

HRUSA: I, you know, I don't identify nonvascular plants.

GERAGOS: That's not your area of expertise?

HRUSA: That is not my area of expertise.

GERAGOS: Is there somebody that specializes in nonvascular plants?

HRUSA: There are specialists who do that, yes.

GERAGOS: Is there a high demand for that?

HRUSA: About maybe a little less than there is for a person who specializes in vascular plants.

GERAGOS: Was, you obviously know a heck of a lot about grass. Is the first thing that he showed you, Mr. Harris showed you, is it, are we talking about the item, is this it?

HRUSA: That's it, yes.

GERAGOS: Okay. And you said it's two centimeters?

HRUSA: It was about two centimeters long.

GERAGOS: Can you show the jury about how long that is.

HRUSA: Oh, you see it. Like that. Less than an inch.

GERAGOS: And your expert determination is it's a piece of grass?

HRUSA: Yes.

GERAGOS: And this piece of grass could come from anywhere?

HRUSA: I would say, yes.

GERAGOS: Okay. Golf course?

HRUSA: Yes.

GERAGOS: The coast?

HRUSA: Yes.

GERAGOS: The, up in the mountains when you're hiking?

HRUSA: It's not really a plant, this particular plant is not a plant of wild areas very often, but, yes, it could occur in a great many areas.

GERAGOS: Would it be easier to try to define the areas where it wasn't than where it was?

HRUSA: Yes.

GERAGOS: Why is that?

HRUSA: It's such a widespread ubiquitous plant. It's one that's worldwide and one of the most common plants in California.

GERAGOS: And can you tell me the specific plant, it's a plant fragment, is that what you called it?

HRUSA: I called it a plant fragment, yes.

GERAGOS: And it's two centimeters long and you demonstrated a millimeter wide?

HRUSA: Yes.

GERAGOS: How wide is a millimeter?

HRUSA: A millimeter is about one-twentyfifth of an inch.

GERAGOS: Okay. You've got a high confidence from this tiny piece of material that it is a piece of grass that's virtually everywhere. I have a very high confidence that it is a piece of grass. I have a less high confidence that it is in the genus poa. And below that, I have a less high confidence that is the species poa annua. But it matched that species in our specimens as comparing to an actual specimen quite well, how low does your confidence go?

HRUSA: On a scale of one to ten?

GERAGOS: Yes.

HRUSA: Species-wide, it be about a five.

GERAGOS: A five. And that's, is this also consistent with a weed, spring weed?

HRUSA: It is a spring weed, yes.

GERAGOS: Okay.

HRUSA: Spring winter spring weed, cool season weed.

GERAGOS: From looking at this you don't know where it came from, correct?

HRUSA: That's correct.

GERAGOS: You don't know how old it is, correct?

HRUSA: That is correct.

GERAGOS: We don't know how long it was originally, right?

HRUSA: That is correct.

GERAGOS: We don't know specifically what area, if at all, it came from in California, correct?

HRUSA: That is correct.

GERAGOS: We don't know how it got to wherever it is that it was retrieved, right?

HRUSA: That is correct.

GERAGOS: We don't know whether or not it was, I mean we got a confidence level, wouldn't you say about, from one to ten, about a five?

HRUSA: That it's this species?

GERAGOS: That it is this particular species.

HRUSA: Yes, about that.

GERAGOS: And how many different species that it could be part of?

HRUSA: In the genus poa worldwide, it has about 500 species.

GERAGOS: So you've got a confidence level of five, about half, you're kind of half confident that it could be somewhere in 500 types of species?

HRUSA: There was enough similarity to a group of annual blue grasses that occur in California that I felt confident to narrow it down to approximately one of those five. And three of those have restricted ranges that are usually not plants associated with human activity or relatively uncommon. And then one is in, one is similar to poa ana, but is found primarily in southern California. And it is a relatively uncommon plant even there, and then poa annua is ubiquitous.

GERAGOS: And the ubiquitous one is the one that you think you've got the highest confidence this falls into?

HRUSA: This falls into the ubiquitous one, yes.

GERAGOS: Right. The ubiquitous, meaning it's everywhere?

HRUSA: Right.

GERAGOS: Thank you. I have no further questions.

Redirect Examination by David Harris

HARRIS: Doctor, the fragment that you have, though, is the end of one of these blades of this grass?

HRUSA: That's right, it's the tip.

HARRIS: And your confidence level as to the exact species is about five, but this being a blade of grass, fairly confident about that?

HRUSA: Nine. 9.5.

HARRIS: All right. People have no further questions.

JUDGE: Anything about that, Mr. Geragos?

GERAGOS: No.

JUDGE: Doctor Hrusa, thank you very much for coming. Thank you.