IN THE CIRCUIT COURT,
NINTH JUDICIAL CIRCUIT,
IN AND FOR ORANGE
COUNTY, FLORIDA.

CASE NO.: 48-2008-CF-15606

DIVISION: 99

WITH ATTACHMENTS

FILED IN OFFICE
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LYDIA GARDNER
CLERK CIRCUIT COURT
ORANGE CO., FL.

STATE OF FLORIDA

VS.

CASEY MARIE ANTHONY
_____________________________/

MOTION TO EXCLUDE UNRELIABLE EVIDENCE
(Plant or root growth evidence)

Defendant, Casey Marie Anthony, by and through her undersigned attorney, moves this Honorable Court to exclude from this cause any testimony or evidence concerning the length of time required for various plant growth or plant root growth pursuant to Sections 90.401 and 90.402 and 90.403, Florida Statutes, the due process clauses of Amendments Five and Fourteen, Constitution of the United States and Article 1, Section 9, Florida Constitution, and *U.S. v. Frye*, 293 F. 1013 (D.C.Cir. 1923). As general legal grounds, Defendant states:

1. Florida recognizes a test first enunciated in *U.S. v. Frye*, 293 F. 1013 (D.C. Cir. 1923). This test is imposed as a threshold for admissibility of a scientific principle or test. Under Frye, it must be shown that a scientific principle or test is "sufficiently established to have gained general acceptance in the particular field in which it belongs." *Id.*, 293 F. at 1014. This ensures a jury will not be mislead by experimental scientific methods that may ultimately prove to be unsound. *See Stokes v. State*, 549 So.2d 188

(Fla. 1989). *Stokes* holds that a "courtroom is not a laboratory, and as such it is not the place to conduct scientific experiments. If the scientific community considers a procedure or process unreliable for its own purposes, then the procedure must be considered less reliable for courtroom use."

2. As outlined by the Florida Supreme Court in *Ramirez v. State*, 651 So.2d 1164 (Fla. 1995), the *Frye* test is a four step process. The steps are: 1) whether such expert testimony will assist the jury in understanding the evidence or in determining a fact in issue, 2) whether the expert's testimony is based on a scientific principle or discovery that is sufficiently established to have gained general acceptance in the particular field in which it belongs, 3) whether a particular witness is qualified as an expert to present opinion testimony on the subject in issue, and 4) the jury's determination of the credibility of the expert opinion, which it may either accept or reject. Under *Ramirez*, it is up to the proffering party to demonstrate the requirements of both scientific reliability and general acceptance in the field.

3. "Pure opinion" testimony is not subject to the *Frye* test. Pure opinion testimony is testimony which "does not rely upon any study, test, procedure or methodology that constitutes new or novel scientific evidence." *Gelsthorpe v. Weinstein*, 897 So.2d 504. at 510-511(Fla. 2d DCA 2005), quoted with approval in *Marsh v. Valyou, Jr.* 977 So.2d 543 (Fla. 2007). The evidence which Defendant seeks to exclude by this motion does not constitute pure opinion testimony as said testimony is not deduced from a well-recognized or established scientific methodology.

3. Introduction of testimony concerning "test" results when the scientific community does not consider the methodology used to deduce those results to be reliable

and which do not meet the *Frye* test would result in a denial of due process under both the Florida and Federal Constitutions because admission of such testimony or evidence would lead to jury confusion about which evidence is reliable and which is unreliable. Due process of law is a constitutional guarantee of respect for personal rights that is "so rooted in the traditions and conscience of our people as to be ranked as fundamental." *Snyder v. Massachusetts*, 291 U.S. 97, 105 (1933). A jury verdict premised upon testimony or evidence which should not have been admitted because it embraces a scientific principle or methodology which is unreliable will violate Defendant's due process rights enunciated in Article 1, Section 9 of the Florida Constitution and the Fifth and Fourteenth Amendments of the United States Constitution.

4. Additionally, introduction of testimony concerning scientific principles or tests that the scientific community does not consider reliable or testimony deduced from an unreliable methodology which do not meet the *Frye* test would violate Sections 90.401 and 90, 402, Florida Statutes as immaterial to the facts at issue and violate Section 90.403, Florida Statutes, in that the probative value of such evidence is greatly outweighed by the prejudicial effect of such evidence.

A statement of the facts that the State seeks to introduce relating to plant growth/ plant root growth is as follows:

1. Dr. Hall is listed as a prosecution witness. He is an alleged botany expert who claims to have the ability to calculate the period of time in which the remains of the victim had been in the particular location in which they were ultimately found based upon certain plant growth/plant root growth.

2. At deposition, Dr. Hall testified that he determined the speed with which roots grew in and around the remains not based on any article, book, or journal, but based on his "personal experience" since he was ten years old. Dr. Hall claims that he can calculate root growth without knowing a) the name of the plant whose growth he is estimating; or, b) the length of the root. Dr. Hall acknowledged there are approximately 6000 different plants that can grow in the area in which the deceased was located. Different plants have different growth rates depending on type of plant and environmental conditions. Additionally Dr. Hall acknowledged he examined only the diameter of the root while admitting the length of the root is one of the factors that can determine the length of time it took for growth.

3. At deposition Dr. Hall admitted that the only article he referenced as authoritative in the field is an article having to do with trees which is not relevant with regard to estimation of growth rate having to do with plants.

4. At deposition Dr. Hall admitted that his methodology has not been peer reviewed nor does he have any information as to whether or not his methodology has been adopted or accepted by members of the relevant scientific community (presumably botanists). He further stated he is unaware of any other individual in the entire country who uses his "methodology" for determining plant/root growth.

5. At deposition, Dr. Hall admitted that he did not actually see or personally inspect the plant material about which he is testifying, but rendered his conclusions and opinions based on photographs. While he claimed to be able to measure the diameter of a particular plant material or root, some of the photographs he relied upon show that there is no scale or ruler by which he is able to make a measurement. In those photos which

have a scale or ruler, the manner in which the photos were taken or the manner in which the ruler was positioned do not indicate how high up from the ground the scale or ruler is being held so there's no way to actually correlate whether or not the ruler accurately corresponds with the measurement of the root diameter. Dr. Hall cannot establish that this methodology is generally accepted in the scientific community.

6. The plant material at issue has been destroyed while in the custody of law enforcement due to improper and careless preservation techniques. Thus, the defense has been unable to have an expert review the plant material despite a timely request that the evidence be preserved for defense testing.

7. Attached and incorporated by reference is the affidavit of Dr. Jane H. Bock, who is a forensic botanist. Dr. Bock opines that Dr. Hall's proposed testimony is not based upon a methodology that is generally accepted in the relevant scientific community.

TESTIMONY REGARDING PLANT GROWTH/ROOT GROWTH AS IT RELATES TO THIS CASE IS INHERENTLY UNRELIABLE AND THE RESULT OF THE APPLICATION OF PRINCIPLES THE SCIENTIFIC COMMUNITY DOES NOT CONSIDER RELIABLE AND WHICH DO NOT MEET THE *FRYE* TEST.

In *Flanagan v. State*, 586 So.2d 1085 (Fla. 1st DCA 1991), reversed, 625 So.2d 827 (Fla. 1993), the Florida Supreme Court considered whether sex offender profile evidence met the *Frye* test for admissibility. At issue was whether the testimony of an HRS Child Protection Team psychologist who testified about "common characteristics of the home environment where child sexual abuse occurs and about the characteristics of abusers" was admissible as meeting the *Frye* test. The Court distinguished this type of evidence, which relies on some scientific principle or test which implies an infallibility

not found in pure opinion testimony, from pure opinion testimony which relies solely on the expert's personal experience or training.

The Court stated:

> The jury will naturally assume that the scientific principles underlying the expert's opinion are valid. Accordingly, this type of testimony must meet the Frye test, designed to ensure that the jury will not be mislead by experimental scientific methods which may ultimately prove to be unsound.

Id. at 828. The Court held, after reviewing relevant academic literature and case law, that sexual offender profile evidence is not generally accepted in the scientific community and does not meet the *Frye* test for admissibility. The Court cited with approval Judge Ervin's concurring and dissenting opinion in the decision of the First District Court of Appeal.

Similarly, in *Hadden v. State*, 690 So.2d 573 (Fla. 1997), the Florida Supreme Court considered the issue of the admissibility of child sexual abuse accommodation syndrome. The Court held that this syndrome has not been proven by a preponderance of scientific evidence to be generally accepted by a majority of experts in psychology, and therefore does not meet the *Frye* test. The Court again cited with approval Judge Ervin's concurring and dissenting opinion in *Flanagan, supra*, and his dissenting opinion in the First District Court of Appeal decision in *Hadden v. State*, 670 So.2d 77 (Fla. 1st DCA 1996).

In *Hadden*, the Supreme Court held that profile evidence and syndrome evidence suffer from the same infirmity-they have not reached the level of general acceptance in the scientific community. The Court stated:

> We differentiate pure opinion testimony based upon clinical experience from profile and syndrome evidence because profile and syndrome evidence rely on conclusions based upon studies and tests. Further we find that profile or syndrome evidence is not made admissible by

> combining such evidence with pure opinion evidence because such a combination is not pure opinion evidence based solely upon the expert's clinical experience.(emphasis added)

Id. at 580.

In *Irving v. State*, 705 So.2d 1021 (Fla. 1st DCA 1998), the First District Court of Appeal reaffirmed the principle that expert testimony that a child victim exhibited symptoms consistent with a child who has been sexually abused was inadmissible as not meeting the Frye test. The testifying expert never used the terms "profile" or "syndrome" and instead relied upon post traumatic stress disorder and related diagnostic criteria. The Court held if the expert bases his opinion on matters other than the expert's experiences, it is subject to the *Frye* test.

Finally, the Florida Supreme Court recently reaffirmed *Flanagan* and *Hadden* in *Williamson v. State*, 994 So.2d 1000 Fla. 2008). *Williamson* held that a *Frye* hearing should have been conducted prior to the admission of expert testimony regarding a state witness displaying "a pattern of someone who has been terrorized." The Court specifically rejected the State's theory that this constituted "pure opinion" testimony and reaffirmed the principle first announced in *Flanagan, supra*, that "in order to introduce expert testimony deduced from a scientific principle or discovery, the principle or discovery 'must be sufficiently established to have gained general acceptance in the particular field in which it belongs'." *Id.* at 1010.

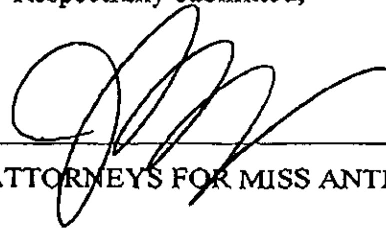
In the case at hand, Dr. Hall's testimony is premised upon a methodology which is not generally accepted by other biologists or plant growth experts. Said methodology and the underlying theory behind the methodology has not gained general acceptance in the particular field in which it belongs.

Defendant specifically requests this Court hold an evidentiary hearing on this issue.

For the foregoing reasons, Defendant respectfully requests this Court to exclude the testimony of Dr. Hall.

Wherefore, Defendant requests this Honorable Court exclude the above-referenced testimony or evidence from any trial of this cause.

Respectfully submitted,



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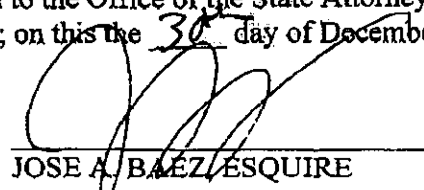
CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been sent by U.S. Mail, Fax, hand and/or email delivered to the Office of the State Attorney at 415 North Orange Avenue, Orlando, Florida 32801; on this the 30 day of December, 2010.



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Report submitted to:
Jose A. Baez, Esquire
522 Simpson Road
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28 September 2010

Dear Sir:

This report concerns Orange County Sheriff's Department Case Number 08-074777. I first visited the crime scene on February 1, 1009. Another forensic botanist, Dr. David W. Hall, had been there on December 15, 2008 prior to my visit. Both of these visits occurred after the scene had been cleared of most of the vegetation and the plant litter covering the ground in the area being examined closely by investigators.

Investigator Jennifer L-H Welch. (p. 3433) reported "...during the period from December 12th through this date of December 14th [2008] the areas searched had been cleared of leaf litter and vegetation on top of the surface of the round, going down approximately zero to four inches. Around the tree and tree roots the surface had been searched/cleared out from approximately zero to ten inches, as determined with a tape measure held from the ground to the soil mark on the tree."

At the time of my first visit, there was a large (approximately 3.5 feet high) pile of heaped up vegetation, leaf litter, and wood. I inspected it visually, but did not dig down into the pile. I assume it had been moved there purposefully.

I visited the site a second time on December 31, 2009. The ground appeared to be covered with less living vegetation than in the early crime scene photos, although there were roots on the surface of the soil along with leaf litter.

I have read Dr. Hall's report dated February 9, 2009, with care and acknowledge his identifications of the conspicuous and most common plant species at the site and his evaluation of its being comprised of both exotic and native species.

I wish to address certain matters related to the botanical evidence in this case and the conclusions based upon them. A statement submitted by Dr. Hall concerned the growth rate of the smaller roots (0.5 mm diameter) and the larger ones (1.0-2.0 mm diameter) in this case. The smaller roots "are evidence of the material being available for root colonization during the recent two or three months prior to being discovered and taken as evidence. The larger diameter roots would, in my opinion, be evidence that the object through which or through which they grew would have been available for at least four months." This assumes the smaller and the larger roots had the same growth and penetration rates; but this is not necessarily so. It also assumes a clear knowledge of root growth rate in this particular place. The two sizes of roots could have grown at similar rates or at disparate ones depending upon whether they came from the same species and/or were subjected to the same environmental conditions.

Scientific findings that allow generalizations at root growth and penetration rates do not exist at the present tine. Using ISI Web of Information, over 100 references regarding plant root growth have been published in 2010 alone. These papers give examples of the many variables can affect root growth and penetration including moisture, drought, soil chemistry including nitrogen, potassium, calcium, herbicide presence, soil structure, kinds of other root systems present,

JHB

EXHIBIT A

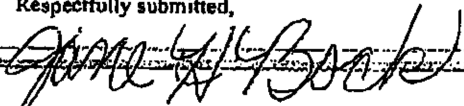
plant growth substances (auxins), saline conditions, etc.. None of the papers I read (approximately 25) made generalizations about growth rates. In the Journal of Experimental Botany May 2010, Lionel Dupay called for simulation models to be made of root system growth by gathering information for a world wide mathematical models that could "describe the dynamics of root density distributions as a function of individual root development parameters such as rates of lateral root initiation, elongation, elongation, mortality, and gravitropism." Such a working model does not exist at the present time.

I also studied an earlier review paper (Watt, M., Silk, W.K. and J.B. Passioura, *Annals of Botany* 97:839-855, 2006. "Rates of root and organism growth, soil conditions, and temporal and spatial development of the rhizosphere.") The medical examiner's summation (p. 6442) relies on Dr. Hall's comments about root growth rates and patterns as does Dr. John Schultz's Time Since Death discussion (pp. 6468-9), but this is not appropriate. The noted litter accumulation need not have been present since the fall, but could have formed much closer to the discovery of the remains and attendant evidence.

I may not have been privy to all crime scene photos, but the earliest ones I have viewed related to the collection of evidence show leaf litter of dead leaves interspersed with green ones. This suggests to me that some of these photos are of already disturbed leaf litter.

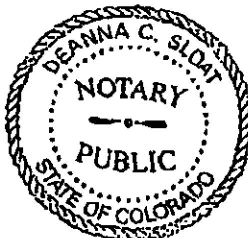
The photos of *my first* visit to the site, February 1, 2009, show at that time had large numbers of fallen leaves on the otherwise cleared soil surface, even though the area had been scraped clean by December 12, 2008. This means that the dead leaves commented on as having "fallen during the previous fall season" may have fallen later in November or early December as well. Because litter accumulation continued from the time of the scraping of the crime scene (by Dec. 12, 2008) until my first visit on February 1, 2009, significant leaf fall is not confined to fall months. Litter certainly continued to accumulate through late December and January 2009, covering much of the soil surface in those six weeks prior to my visit to the scene.

Respectfully submitted,



Jane H. Bock, PhD
Professor emerita

SUBSCRIBED AND SWORN TO BEFORE ME
THIS 7th DAY OF DEC 2010
By: Deanna C Sloat
12/29/11 expiration date
Deanna C. Sloat Notary Public



My Commission Expires 12/29/2011