
**Professional Association of
Radio Controlled Aircraft Pilots
(PARCAP)**

**Testimony Before the Oregon State
Senate Committee on Judiciary
Regarding
Oregon Senate Bill SB 71/SB 71-4**

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(PARCAP, parcap.org)

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Witness Background

Identification

1. Andy Johnson-Laird, 850 NW Summit Ave, Portland Oregon, 97210. 503 274-0784. ajohnsonlaird@parcap.org or andy@jli.com.

Representing

2. I am testifying today primarily on behalf of the Professional Association of Radio Controlled Aircraft (parcap.org), a newly founded organization that represents pilots who fly unmanned aircraft professionally (commercially in those countries where it is permitted, non-commercially where no regulations yet exist). I am also testifying as a recreational flier of model aircraft, a concerned citizen, a father, and a grandfather.

Background

Professional

3. I am a citizen of the United States and Great Britain. Since 1979, my wife and I have owned and operated a forensic software analysis company, Johnson-Laird Inc. (www.jli.com). We analyze computer-based evidence in the context of intellectual property litigation. I also have worked as a Special Master to Federal Judges with computer-related cases.

I have authored numerous articles individually, with attorneys, and with law professors, that have been published in law journals and in the Federal Courts Law Review (www.fclr.org) relating to computer technology and its impact on the Law.

Aviation Experience

4. I also own and operate several unmanned aircraft. I fly them recreationally and professionally although non-commercially — I volunteer my time and aircraft to Oregon Public Broadcasting assisting them to get aerial footage for local productions such as Oregon Field Guide.

5. I am also an FAA-licensed light aircraft and self-launching sailplane pilot (a sailplane is high performance glider).

6. I am also a moderator on an on-line forum with 780 members around the world who fly unmanned aircraft used to lift professional-grade video cameras and still cameras for their work as professional videographers and photographers. I advise the forum members how to adjust, fault-find, and maintain their unmanned aircraft.

7. I also create, produce, and sell educational DVDs that instruct people how to assemble, test, fly, and configure the avionics for these professional unmanned aircraft.

8. I am also a member of the Academy of Model Aeronautics and the Association for Unmanned Vehicle Systems International, and I fly model aircraft for recreation and training.

Summary of Testimony

Testimony on Behalf of Professional Association of RC Aircraft Pilots (PARCAP)

9. Newly formed to represent professional pilots (not pilots who fly for recreation, for public bodies, or for the military).

PARCAP is Opposed In Part to SB 71 as Modified by SB 71-4

10. PARCAP is opposed, in part, to SB 71 as modified by SB 71-4. This opposition is summarized below. Unless otherwise stated PARCAP supports SB 71-4.

SECTION 1. (1) : Definition of “Drone” is overbroad

11. The definition of “drone” is overbroad: it conflates children’s kites, children’s toy aircraft, model aircraft, professional unmanned aircraft and those operated by public bodies and the military.

12. The definition of “drone” for this Bill can easily be corrected: aircraft size and weight do not matter. Merely by considering *pilot* and *purpose* (of flight) unmanned aircraft can easily be classified for SB 71-4. The Federal Aviation Authority, and Academy of Model Aeronautics also, in part, use *pilot* and *purpose*.

SECTION 1. (1) : “Drone” is Not the Correct Term : Use “Unmanned Aircraft”

13. The Federal Aviation Authority, Academy of Model Aeronautics, the International Civil Aviation Organization, Transport Canada all use the designations of Unmanned Aircraft (“UA”) and Unmanned Airborne Systems (“UAS”).

SECTION 2. (6) : “Drone” Firing Projectile at an Aircraft? Include Lasers

14. PARCAP supports this provision but suggests extending this language to include lasers and electromagnetic devices.

SECTION 5. (1) : Imposition of Strict Liability is Inappropriate

15. The imposition of strict liability appears inappropriate given the overbroad definition of “drone.”

16. As written, SB 71-4 exposes children and their parents and hobbyists to strict liability and treble damages when using toys.

SECTION 7. (1) : Ability to Bring Action for Overflight Below 400 Feet

17. With the overbroad definition of “drone,” this exposes children and their parents to significant risks even using toys.

18. Given the frailty of human perception it is all but impossible to determine whether a given UA is above or below 400 feet even when it is directly overhead. To estimate distance one needs to know size. To know size one needs to know model and manufacturer.

19. Based on preliminary discussion with PARCAP's counsel, existing Statutes, e.g, those cited in Section 2. (1) – (5), will likely provide adequate protection for property owners/occupiers from nuisance, trespass, invasion of privacy, enjoyment of property, stalking, and voyeurism.

SECTION 7. (2) : Treble Damages for Injury or Trespass

20. The ability to recover treble damages appears inappropriate given the overbroad definition of “drone,” and, even if this definition is corrected, treble damages seems unnecessarily punitive. If the perception is of an ever-larger flock of “drones” over Oregon, then surely this also indicates a burgeoning economic situation that may be harmed by the threat of treble damages.

21. Furthermore, there already appear to be adequate laws covering liability for damages for injury or trespass. Thus PARCAP opposes this provision.

SECTION 8. : SB 71/71-4 is an Emergency Bill

22. There do not appear to have been any reported incidents in the State of Oregon that suggest a state of emergency exists. Again, if the Committee senses that there is a flock of “drones” over Oregon, then the same concerns expressed above regarding damaging a growing economic sector must surely apply.

END OF SUMMARY

Professional Association of RC Aircraft Pilots (PARCAP)

23. PARCAP is a newly formed professional association with the following Mission Statement:

- i. To provide a voice for professional Unmanned Aircraft pilots in those countries where commercial use is permitted and also in those countries where regulations for commercial use are currently being formulated.
- ii. PARCAP's priorities are (1) operational safety, (2) respect for other airspace users and the public, (3) professionalism in our operations, and (4) education of the public, the media, governmental regulators and elected representatives on the use and benefits of UA operations.
- iii. PARCAP will represent the interests of its membership in those instances where the public, the media, and the law and regulation-makers need assistance with understanding professional Unmanned Airborne Systems and their capabilities.
- iv. The long-term mission for PARCAP is also to provide additional benefits to its members, ranging from pilot education, pilot certifications at levels beyond those imposed by national aviation authorities, and, where permitted, group-rate insurance for professional pilots and UAS.

See <http://parcap.org/about/mission-statement/>

Detailed Testimony Regarding SB 71 as Amended by SB 71-4

24. These comments address the page and line numbers of the Proposed Amendments in OR SB 71-4 that essentially replaces SB 71.

The Definition of "Drone" is Overbroad

25. OR SB 71-4, page 1, line 4 : "'Drone' means an unmanned flying machine."¹

26. PARCAP respectfully suggests that this definition inappropriately includes kites, children's toy helicopters and fixed wing aircraft, recreational model aircraft both powered and gliders, model helicopters and multi-rotor helicopters, and tethered or radio controlled dirigible unmanned hot air, or lighter-than-air, balloons of all sizes.

¹ The Supreme Court has defined the term "machine" as "a concrete thing, consisting of parts, or of certain devices and combination of devices." [Burr v. Duryee, 68 U.S. \(1 Wall.\) 531, 570, 17 L.Ed. 650](#)

27. While it might be tempting to suggest wholesale adoption of the definitions used by either the Federal Aviation Administration (“FAA”) or the Academy of Model Aeronautics (“AMA”) for UA and Model Aircraft respectively for the purposes of this Bill, PARCAP’s position is that these definitions are also partially flawed because they use the inappropriate metrics of size and weight for UA classification. As a result they also cast too wide a net.

28. PARCAP’s position is that there are too many fundamentally different, but overlapping, UA types when viewed through the lenses of size and weight. For example, military UA range from the MQ-1B Predator² with a 55.25 foot wingspan and weighing 2,250 pounds, the AeroVironment Switchblade³ with a wingspan that appears to be about 30 inches, and weighs 2.2 pounds, all the way down to a small surveillance fake “hummingbird” funded by DARPA that weighs a few ounces.⁴

29. Commingled in these ranges of size and weight are children’s toys like the \$299 children’s toy AR.Drone Parrot, which is 22 inches square, with two cameras and weighs about 13 ounces. The Parrot has a GPS system and can follow a flight path of preprogrammed waypoints.

30. Professional UA, such as those flown by some of PARCAP’s pilots, are camera-carrying multi-rotor aircraft such as the Cinestar 8⁵ which, when carrying cameras such as a professional Red Epic,⁶ can weigh up to 33 pounds and measure almost five feet across.

31. Model aircraft also occupy this range, from the gossamer-light indoor aircraft weighing less than 0.07 of an ounce with a wing span of 25.5 inches⁷ up to the AMA’s Large Model Aircraft⁸ classification which can have typical wing spans of nine feet or more (there is no wingspan limitation) and weight up to 77.2 pounds (and can be powered by miniature jet engines).

PARCAP’s Suggestion : Use a *Pilot* and *Purpose* Test For Aircraft Classification

32. It is therefore PARCAP’s suggestion that a more apposite definition for UA for this Bill is to classify UA by *who* is flying them, for what *purpose* they are being flown, and, implicit within purpose, what *use* is made of any data (be it imagery or other sensor data) thus gathered.

² http://en.wikipedia.org/wiki/MQ-1_Predator (visited March 12, 2013).

³ http://defense-update.com/products/s/switchblade_31122010.html (visited March 12, 2013).

⁴ See http://www.time.com/time/video/player/0,32068,1281633027001_2099853,00.html (visited March 12, 2013).

⁵ www.freeflysystems.com (visited March 13, 2013).

⁶ http://en.wikipedia.org/wiki/Red_Epic#Epic (visited March 13, 2013).

⁷ See INDOOR DURATION, HOW ONE GETS BUILT: <http://www.indoorduration.com/buildingf1d.htm> (visited March 12, 2013).

⁸ <http://www.modelaircraft.org/events/largemodelaircraft.aspx> (visited March 12, 2013).

33. PARCAP acknowledges that from the AMA or the FAA’s point of view an upper-bound on a UA’s weight is used to prevent recreational pilots from building full-scale aircraft. However, this limitation appears to be irrelevant for the purposes of this Bill — which is not attempting to deal with pilot and aircraft certification.

34. The following table shows how UA can be appropriately classified for this Bill. While toys, model aircraft, UA flown by public bodies and the military are outside PARCAP’s remit they are included in the following table only to demonstrate the classification system across the gamut of different pilot and purpose combinations.

EXAMPLE UA CLASSIFICATION BASED UPON PILOT AND PURPOSE

WHO IS THE PILOT?	WHAT IS THE PURPOSE OF FLIGHT?	WHAT DATA IS BEING GATHERED?	WHAT WILL THE DATA GATHERED BE USED FOR?	UNMANNED AIRCRAFT CLASSIFICATION
Hobbyist	Recreation	Not applicable	None gathered	Model aircraft or toy
Hobbyist	Recreation	FPV ⁹ and/or payload camera ¹⁰	Personal use in compliance with all extant Oregon Statutes and SB 71-4 Section 2	Model aircraft or toy
Professional	Professional commercial or non-commercial videography or photography	FPV and/or payload camera	Professional commercial or non-commercial imagery in compliance with all extant Oregon Statutes and Oregon SB 71-4 Section 2	Professional UA
Law enforcement or public body	Lawful surveillance, intelligence gathering	FPV and/or payload camera	For law enforcement or the public body’s purpose, in compliance with all extant Oregon Statutes and SB 71-4, Section 2	Law enforcement or public body UA
Military	Surveillance, intelligence, weapons platform	FPV and/or payload camera and sensors	For use in conflict	Military UA (“Drone”)
Any	Unlawful surveillance, stalking, invasion of privacy, trespass, and other unlawful purposes	Any electronic imagery or data	Inappropriate usage under extant Oregon Statutes and SB 71-4 Section 2	Unlawfully operated UA

⁹ First Person Video — a form of “pilot’s eye view” video that is downlinked by radio to a screen or video goggles on the ground and may or may not be recorded. See http://en.wikipedia.org/wiki/First_Person_View (visited March 12, 2013).

¹⁰ A “payload camera” is a term used to separate the FPV camera from any other camera that is recording images onboard the UA.

Model Aircraft

35. As mentioned above, while the task of defining a Model Aircraft is beyond PARCAP's remit, it is addressed in the table above and discussed below to demonstrate that both the FAA and AMA are already using the "pilot and purpose" approach for UA classification.

The FAA Already Uses "Pilot and Purpose" for UA Classification

36. Specifically, the FAA's position on model aircraft is made clear in the FAA Fact Sheet on Unmanned Aircraft Systems published February 19, 2013:

Recreational use of airspace by model aircraft is covered by FAA Advisory Circular 91-57, which generally limits operations to below 400 feet above ground level and away from airports and air traffic. In 2007, the FAA clarified that AC 91-57 only applies to **modelers, and specifically excludes individuals or companies flying model aircraft for business purposes.**

The FAA guidance is available at:

http://www.faa.gov/documentLibrary/media/Advisory_Circular/91-57.pdf

See http://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=14153 (emphasis added, visited March 11, 2013).

37. Thus one can see that the FAA is considering (a) who the pilot is and (b) for what purpose flight is occurring.

The AMA Already Uses "Pilot and Purpose" for UA Classification

38. This pilot and purpose classification is also echoed by the AMA's own definitions:

Model Aircraft:

A sUAS [small Unmanned Airborne System] **used by hobbyists** and flown within visual line-of-sight under direct control from the pilot, which can navigate the airspace, and which is manufactured or assembled, and **operated for the purposes of sport, recreation and/or competition.**

See <http://www.modelaircraft.org/faq/recommendations.pdf>, Section 1, at 1 (emphasis added, visited March 11, 2013).

PARCAP's Suggestion for the Definition of "Drone" in SB 71-4

39. Firstly, PARCAP respectfully suggests that the use of the word "drone" is to be avoided. It has the connotation in the media (and perhaps the general public) of counter-terrorism surveillance and killing machines deployed by military

personnel.¹¹ The use of the word “drone” is thus improper and contradicts the terminology already used by such national and international organizations as FAA (see above), Transport Canada,¹² the Civil Aviation Authority (Great Britain),¹³ and the International Civil Aviation Organization.¹⁴

40. All of these organizations use UA to mean Unmanned Aircraft and UAS to mean Unmanned Aircraft Systems (which embraces the ground station as well as the UA).

41. Secondly, PARCAP respectfully suggests that SB 71-4 be amended to classify UA based upon *the pilot* who is flying, the *purpose* of the flight, and thus, implicitly the *use* to which any data gathered is put. The table above is offered as a possible starting point from which to extract the appropriate definition.

SECTION 2. (6) “Drone” Firing Projectile at an Aircraft? Consider Lasers

42. While this aspect of SB 71-4 is outside PARCAP’s direct remit, PARCAP respectfully suggests this provision be augmented. At present the language reads:

(6) A person who possesses or controls a drone and causes the drone to fire a bullet or other projectile at an aircraft [...].”

43. PARCAP suggests that this be extended to include non-projectile devices such as directing a laser or other electromagnetic device that could interfere with the flight of the targeted aircraft. Such devices could equally well cause severe interference with the aircraft’s pilot or avionics.

SECTION 5. (1) : Imposition of Strict Liability is Inappropriate

44. With the current definition of “drone” (which as mentioned above PARCAP respectfully suggests is overbroad), SB 71-4 would apply strict liability to children and their parents in such situations as when a child’s toy unmanned aircraft fails in mid-air and causes injury to a property owner/occupier or trespasses upon that property.

¹¹ See e.g. DRONES AND THE MEDIA, <http://www.politico.com/blogs/media/2013/02/drones-and-the-media-156661.html> (visited March 12, 2013).

¹² See UAV WORKING GROUP <http://www.tc.gc.ca/eng/civilaviation/standards/general-recavi-uavworkinggroup-2266.htm#13>, section 13.2 “unmanned aircraft system.” (Visited March 12, 2013). UAV, Unmanned Airborne Vehicle, is synonymous with Unmanned Aircraft.

¹³ See <http://www.caa.co.uk/default.aspx?CATID=1995> (visited March 12, 2013).

¹⁴ See UNMANNED AIRCRAFT SYSTEMS (UAS) http://www.icao.int/Meetings/UAS/Documents/Circular%20328_en.pdf Abbreviations/Acronyms at (vii).

45. It seems unusually harsh for this to be the intent of this Bill, but this, in PARCAP's opinion, would indeed be the effect.

46. This is also the effect for a hobbyist if a model aircraft — perhaps one sold as “ready to fly” (which means no assembly is required) — were to fail in flight and cause damage or injury. Even though that hobbyist did not assemble the aircraft and has no means for testing the internal electronics, the full impact of strict liability will be imposed on that hobbyist.

47. A professional UA pilot, who is even more likely to have purchased a “ready to fly” UA because they lack the skill or the time to assemble the UA from a kit, will also be exposed to strict liability for failures in the aircraft for which they are not: knowledgeable of, capable of preflight testing to ensure the failures do not occur, or responsible for when the failure occurs.

48. Furthermore, for the child, the hobbyist, and the professional pilot, more and more UA offer fully autonomous flight, flying without any in-flight pilot input between “way points” and automatically returning back to their takeoff point. Given this increasing level of autonomy provided by the vendors, it seems inappropriate that the full weight of strict liability for any manufacturing or programming flaws should fall only on the pilot or their parents in the case of a child.

49. There is also the issue of the professional UA pilot who, being a responsible pilot, attempts to get both General Liability and Inland Marine insurance coverage to cover the UA in flight and possible damage or injury on the ground. It remains to be seen whether the insurance companies will write such coverage if, in Oregon, strict liability is automatically imposed upon the pilot for failures above and beyond the pilot's control. At present no such insurance companies are writing any Inland Marine coverage for UA operations — they are, PARCAP presumes, waiting for the FAA regulations to be issued.

PARCAP's Suggestion

50. PARCAP respectfully suggests that, as more toy, model, and professional Unmanned Aircraft fly autonomously, manufacturers must share some portion of the liability, rather than just pilots alone.

51. PARCAP further respectfully requests that the strict liability provision be removed from SB 71-4 by striking SECTION 5. (1) in its entirety.

SECTION 7. (1) : Action by Property Owner for Overflight Below 400 Feet

52. PARCAP wishes to bring several issues to the attention of the Committee.

It is Almost Impossible to Estimate the Height of a Small UA

Visual Estimation is Fraught with Uncertainty

53. There is a fundamental issue with the use of the phrase “height of 400 feet.” In aviation, height is measured with respect to the ground (and *altitude* is measured with respect to mean sea level). However, when operating a toy, model aircraft, or professional UA, there is often no means for a pilot on the ground to determine the height of the UA above the ground other than by visual approximation. This is extremely hard to do and fraught with error because humans (in this case the UA pilot) cannot estimate distance accurately.¹⁵ This is especially true for aircraft seen against the sky as there is absolutely no visual comparative reference that can be used to assess height.

Perceived Visual Angle

54. There is a second fundamental issue: if the property owner/occupier does not know how wide a UA is (which one can only know by knowing the manufacturer, model, and type) then it is demonstrably impossible for that property owner/occupier to determine the UA’s height with any degree of precision (obviously one can tell if some thing is at five feet versus 400 feet, but not 300 feet versus 400 feet — or 500 feet versus 400 feet).

55. One can simulate this problem easily: If one saw the UA shown below flying directly overhead, what would one estimate its height to be?



Or the height of this UAV?



56. If one makes the assumption that they are the same model of UA, then one can infer that the second one is lower. But how wide is the UA? Absent that information, one can only make an approximate guess of the UA’s height.

57. The above images were chosen carefully. The first, barely visible, example, is what a 40” diameter, multi-rotor helicopter looks like at a height of 400 feet if one holds this page 18” away from one’s eyes. Simple trigonometry shows that a 40”

¹⁵ See OBSERVED ERRORS IN DISTANCE ESTIMATION, Society of Automobile Engineers, published 2010-04-02, <http://papers.sae.org/2010-01-0046/> visited March 14, 2013.

diameter object at a height of 400 feet, will appear to be the same as an object that is 0.15" in diameter at 18". The second, larger image shows how this same aircraft would appear at 200 feet (0.3" in diameter). Furthermore, at 400 feet the UA would most likely be barely audible and thus unlikely to cause a nuisance.

58. Height estimation on the overhead, as shown above, is perhaps the easiest example (and, as shown above, it does not work at all well). Matters only get worse when the UA is somewhat distant — then the slant angle with respect to the property owner/occupier makes it almost impossible to get a sense of height.

59. Thus a property owner/occupier can only guess the UA's height to determine whether they can bring an action. It is easy to imagine how easily an action based on a erroneous guess might be filed inappropriately under Section 7. (1) of this Bill.

Relevant FAA Regulations (Aircraft and Model Aircraft)

60. PARCAP acknowledges that the Federal Aviation Regulations ("FAR") currently prevent any aircraft (except when taking off or landing) coming within 500 feet of the ground or any manmade structure. Specifically defining the Minimum Safe Altitude:

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

See Federal Aviation Regulations Part 91, Section 119 (<http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=3f49b5e2cb10de26c8e7096a53b0d41a&ty=HTML&h=L&r=PART&n=14y2.0.1.3.10#14:2.0.1.3.10.2.4.10> visited March 13-2013).

61. Note that the FARs have not yet been updated to reflect UA and UAS.

62. It would be reasonable to question why the FAA can reasonably impose a height limit when PARCAP argues that it is fraught for SB 71-4 to do the same thing. Would not the same inaccuracies shown earlier also exist?

63. The answer is an emphatic no. Pilots of manned aircraft are, by definition, *in* the aircraft. Aircraft must be equipped with precision altimeters that are set to the current air pressure received by radio from air traffic controllers — this ensures their improved accuracy (air pressure changes with the weather). Furthermore the pilot is looking *down* at the ground (not up into an essentially featureless sky) where there are many, many visual clues of known objects of known sizes such as cars, trees, buildings, and roads — all of these work in concert to allow a pilot an improved ability to assess the height of their aircraft. Glider pilots even undergo

specific training to deal with altimeter failure, the better to improve their ability to estimate their height. Finally, pilots in aircraft with GPS units can determine their *altitude* easily and, because FARs require that pilots fly with topographic aviation maps that show the altitude of the ground, pilots can thus determine their height above the ground by subtracting GPS altitude minus ground altitude.

64. Currently, model aircraft pilots (and professional UA pilots flying for training, non-commercial purpose or recreation) are governed by the FAA Advisory Circular AC 91-57, which states:

3. OPERATING STANDARDS

[...]

c. Do not fly model aircraft higher than 400 feet above the surface. When flying aircraft within 3 miles of an airport, notify the airport operator, or when an air traffic facility is located at the airport, notify the control tower, or flight service station.

See <http://www.eoss.org/faa/ac91-57.pdf> (visited March 13, 2013).

65. In this case, however, the UA's pilot is indeed subjected to the same inaccuracies of visually estimating the height of their aircraft and must rely on their good intent and do their best not to exceed what they guess to be the 400 feet ceiling.

PARCAP's Suggestion

66. Based on preliminary discussion with PARCAP's counsel, PARCAP respectfully suggests that existing Oregon Statutes will likely permit egregious cases to be prosecuted where the height of a UA is so obviously low that the UA is committing a nuisance, trespassing, invading the privacy, or preventing the property owner/occupier from enjoying the property, that the actual height will not be the subject of debate.

67. PARCAP therefore respectfully suggests that Section 7. (1) be removed from this Bill in its entirety. The height limit of 400 feet is not enforceable because there is a high likelihood that a UA pilot cannot accurately know the UA's height, and the property owner is even less likely to be able to guess what a UA's height might be.

SECTION 7. (2) : Treble Damages for Injury or Trespass

Treble Damages Seem Harsh and Inappropriate

68. The ability to recover treble damages appears inappropriate, given overbroad definition of "drone," and, even if this definition is corrected, treble damages seems unnecessarily punitive given the early days of unmanned aviation.

69. PARCAP's understanding is that treble damages are typically used to encourage litigation for violations that are harmful to society. But at present, based on PARCAP's research, there is no such reported evidence of harm to Oregonians (or even residents of other States).

“Drones” as a Threat to Society? Then Consider the Economics

70. PARCAP understands that the Committee may well propose treble damages to provide a strong disincentive to what might be the perception of a rising tide of injuries and trespass by UA operating in the airspace above Oregon.

71. But if one assumes there is indeed a present or future rising tide, that implies a similar growth in the number of UA being made, bought, and flown in Oregon.

72. Given *this* growth, PARCAP respectfully asks the Committee to consider the economic impact of the threat of treble damages. The economy of Oregon is forecast, based on scholarly research¹⁶ by the Association for Unmanned Vehicle Systems International (“AUVSI,” www.auvsi.com) to bring 416 new jobs to Oregon by 2017, generating \$81 million of corporate revenue, and \$410,000 in taxes.¹⁷

SECTION 8. Emergency Declared to Exist

73. PARCAP is unaware of any reported “drone” incidents in the State of Oregon that suggest a state of emergency exists and therefore respectfully requests this clause be removed.

74. Again, if it is the Committee's belief that there is an emergency caused (or about to be caused) by the explosive growth in the numbers of UA, then PARCAP respectfully re-states its request that the Committee consider the economic impact of this Bill on the fledgling UA industry.

75. Thus PARCAP respectfully requests that this Bill issue as a normal Bill.

¹⁶ See The Economic Impact of Unmanned Aircraft Systems Integration in the United States, March 2013, <http://www.auvsi.org/econreport> (visited March 15, 2013).

¹⁷ See interactive map at <http://www.auvsilink.org/Research/EconomicImpactUAS/test.html>, or full report *Id.* at 4, with a more detailed analysis out to 2025 at 32.

Acknowledgment

76. PARCAP extends its appreciation to the Committee for accepting this testimony and for the work that the Committee is doing.

Respectfully submitted,

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www.wikipedia.org/Andy_Johnson-Laird