

AMENDMENT NO. \_\_\_\_\_ Calendar No. \_\_\_\_\_

Purpose: In the nature of a substitute.

**IN THE SENATE OF THE UNITED STATES—115th Cong., 2d Sess.**

**S. 2290**

To improve wildfire management operations and the safety of firefighters and communities with the best available technology.

Referred to the Committee on \_\_\_\_\_ and  
ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT IN THE NATURE OF A SUBSTITUTE intended  
to be proposed by \_\_\_\_\_

Viz:

1 Strike all after the enacting clause and insert the fol-

2 lowing:

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Wildfire Management

5 Technology Advancement Act of 2018”.

6 **SEC. 2. PURPOSE.**

7 The purpose of this Act is to promote the use of the

8 best available technology to enhance the effective and cost-

9 efficient response to wildfires—

10 (1) to meet applicable protection objectives; and

11 (2) to increase the safety of—

1 (A) firefighters; and

2 (B) the public.

3 **SEC. 3. DEFINITIONS.**

4 In this Act:

5 (1) SECRETARIES.—The term “Secretaries”  
6 means—

7 (A) the Secretary of Agriculture; and

8 (B) the Secretary of the Interior.

9 (2) SECRETARY CONCERNED.—The term “Sec-  
10 retary concerned” means—

11 (A) the Secretary of Agriculture, with re-  
12 spect to activities under the Department of Ag-  
13 riculture; and

14 (B) the Secretary of the Interior, with re-  
15 spect to activities under the Department of the  
16 Interior.

17 **SEC. 4. UNMANNED AIRCRAFT SYSTEMS.**

18 (a) DEFINITIONS.—In this section, the terms “un-  
19 manned aircraft” and “unmanned aircraft system” have  
20 the meanings given those terms in section 331 of the FAA  
21 Modernization and Reform Act of 2012 (49 U.S.C. 40101  
22 note; Public Law 112–95).

23 (b) ESTABLISHMENT OF PROGRAM.—Not later than  
24 180 days after the date of enactment of this Act, the Sec-  
25 retary of the Interior, in consultation with the Secretary

1 of Agriculture, shall establish a research, development,  
2 and testing program, or expand an applicable existing pro-  
3 gram, to assess unmanned aircraft system technologies,  
4 including optionally piloted aircraft, across the full range  
5 of wildland fire management operations in order to accel-  
6 erate the deployment and integration of those technologies  
7 into the operations of the Secretaries.

8 (c) EXPANDING USE OF UNMANNED AIRCRAFT SYS-  
9 TEMS ON WILDFIRES.—Not later than 1 year after the  
10 date of enactment of this Act, the Secretaries, in coordina-  
11 tion with State wildland firefighting agencies and other  
12 relevant Federal agencies, shall enter into an agreement  
13 under which the Secretaries shall develop consistent proto-  
14 cols and plans for the use on wildland fires of unmanned  
15 aircraft system technologies, including for the development  
16 of real-time maps of the location of wildland fires.

17 **SEC. 5. LOCATION SYSTEMS FOR WILDLAND FIRE-**  
18 **FIGHTERS.**

19 (a) IN GENERAL.—Not later than 1 year after the  
20 date of enactment of this Act, subject to the availability  
21 of appropriations, the Secretaries, in coordination with  
22 State wildland firefighting agencies, shall jointly develop  
23 and operate a tracking system (referred to in this section  
24 as the “system”) to remotely locate the positions of fire  
25 resources, including, at a minimum, any fire resources as-

1 signed to Federal type 1 wildland fire incident manage-  
2 ment teams.

3 (b) REQUIREMENTS.—The system shall—

4 (1) use technology available to the Secretaries  
5 to remotely track the location of an active resource,  
6 such as a Global Positioning System;

7 (2) depict the location of each fire resource on  
8 the applicable maps developed under section 4(c);  
9 and

10 (3) operate continuously during the period for  
11 which any firefighting personnel are assigned to the  
12 applicable Federal wildland fire.

13 (c) OPERATION.—The Secretary concerned shall—

14 (1) before commencing operation of the sys-  
15 tem—

16 (A) conduct not fewer than 2 pilot projects  
17 relating to the system; and

18 (B) review the results of those pilot  
19 projects; and

20 (2) conduct training, and maintain a culture,  
21 such that an employee, officer, or contractor shall  
22 not rely on the system for safety.

23 **SEC. 6. WILDLAND FIRE DECISION SUPPORT.**

24 (a) PROTOCOL.—To the maximum extent practicable,  
25 the Secretaries shall ensure that wildland fire manage-

1 ment activities conducted by the Secretaries, or conducted  
2 jointly by the Secretaries and State wildland firefighting  
3 agencies, achieve compliance with applicable incident man-  
4 agement objectives in a manner that—

5 (1) minimizes firefighter exposure to the lowest  
6 level necessary; and

7 (2) reduces overall costs of wildfire incidents.

8 (b) WILDFIRE DECISION SUPPORT SYSTEM.—

9 (1) IN GENERAL.—The Secretaries, in coordina-  
10 tion with State wildland firefighting agencies, shall  
11 establish a system to track and monitor decisions  
12 made by the Secretaries or State wildland fire-  
13 fighting agencies in managing wildfires.

14 (2) COMPONENTS.—The system established  
15 under paragraph (1) shall be able to alert the Secre-  
16 taries if—

17 (A) unusual costs are incurred;

18 (B) an action to be carried out would like-  
19 ly—

20 (i) endanger the safety of a fire-  
21 fighter; or

22 (ii) be ineffective in meeting an appli-  
23 cable suppression or protection goal; or

24 (C) a decision regarding the management  
25 of a wildfire deviates from—

1 (i) an applicable protocol established  
2 by the Secretaries, including the require-  
3 ment under subsection (a); or

4 (ii) an applicable spatial fire manage-  
5 ment plan or fire management plan of the  
6 Secretary concerned.

7 **SEC. 7. SMOKE PROJECTIONS FROM ACTIVE WILDLAND**  
8 **FIRES.**

9 The Secretaries shall establish a program, to be  
10 known as the “Interagency Wildland Fire Air Quality Re-  
11 sponse Program”, under which the Secretary concerned—

12 (1) to the maximum extent practicable, shall as-  
13 sign a team of air resource advisors to a type 1 inci-  
14 dent management team managing a wildland fire;  
15 and

16 (2) may assign a team of air resource advisors  
17 to a type 2 incident management team managing a  
18 wildland fire.

19 **SEC. 8. FIREFIGHTER INJURIES DATABASE.**

20 (a) IN GENERAL.—Section 9(a) of the Federal Fire  
21 Prevention and Control Act of 1974 (15 U.S.C. 2208(a))  
22 is amended—

23 (1) in paragraph (2), by inserting “, categorized  
24 by the type of fire” after “such injuries and deaths”;  
25 and

1           (2) in paragraph (3), by striking “activities;”  
2           and inserting the following: “activities, including—  
3                   “(A) all injuries sustained by a firefighter  
4                   and treated by a doctor, categorized by the type  
5                   of firefighter;  
6                   “(B) all deaths sustained while undergoing  
7                   a pack test or preparing for a work capacity;  
8                   “(C) all injuries or deaths resulting from  
9                   vehicle accidents; and  
10                   “(D) all injuries or deaths resulting from  
11                   aircraft crashes;”.

12           (b) USE OF EXISTING DATA GATHERING AND ANAL-  
13           YSIS ORGANIZATIONS.—Section 9(b)(3) of the Federal  
14           Fire Prevention and Control Act of 1974 (15 U.S.C.  
15           2208(b)(3)) is amended, by inserting “, including the Cen-  
16           ter for Firefighter Injury Research and Safety Trends”  
17           after “public and private”.

18           (c) MEDICAL PRIVACY OF FIREFIGHTERS.—Section  
19           9 of the Federal Fire Prevention and Control Act of 1974  
20           (15 U.S.C. 2208) is amended by adding at the end the  
21           following:

22           “(e) MEDICAL PRIVACY OF FIREFIGHTERS.—The  
23           collection, storage, and transfer of any medical data col-  
24           lected under this section shall be conducted in accordance  
25           with—

1           “(1) the privacy regulations promulgated under  
2           section 264(c) of the Health Insurance Portability  
3           and Accountability Act of 1996 (42 U.S.C. 1320d–  
4           2 note; Public Law 104–191); and

5           “(2) other applicable regulations, including  
6           parts 160, 162, and 164 of title 45, Code of Federal  
7           Regulations (as in effect on the date of enactment  
8           of this subsection).”.

9   **SEC. 9. RAPID RESPONSE EROSION DATABASE.**

10       (a) IN GENERAL.—The Secretaries, in consultation  
11       with the Administrator of the National Aeronautics and  
12       Space Administration, shall establish and maintain a data-  
13       base, to be known as the “Rapid Response Erosion Data-  
14       base” (referred to in this section as the “Database”).

15       (b) OPEN-SOURCE DATABASE.—

16           (1) AVAILABILITY.—The Secretaries shall make  
17       the Database (including the original source code)—

18               (A) web-based; and

19               (B) available without charge.

20           (2) COMPONENTS.—The Database shall provide  
21       for—

22               (A) the automatic incorporation of spatial  
23       data relating to vegetation, soils, and elevation  
24       into an applicable map created by the Secretary  
25       concerned that depicts the changes in land-



1 cover and soil properties caused by a wildland  
2 fire; and

3 (B) the generation of a composite map  
4 that can be used by the Secretary concerned to  
5 model the effectiveness of treatments in the  
6 burned area to prevent flooding, erosion, and  
7 landslides under a range of weather scenarios.

8 (c) USE.—The Secretary concerned shall use the  
9 Database, as applicable, in developing recommendations  
10 for emergency stabilization treatments or modifications to  
11 drainage structures to protect values-at-risk following a  
12 wildland fire.

13 (d) COORDINATION.—The Secretaries may share the  
14 Database, and any results generated in using the Data-  
15 base, with any State or unit of local government.

16 **SEC. 10. PREDICTING WHERE WILDFIRES WILL START.**

17 (a) IN GENERAL.—The Secretaries, in consultation  
18 with the Administrator of the National Aeronautics and  
19 Space Administration and the Secretary of Energy,  
20 through the capabilities and assets located at the National  
21 Laboratories, shall establish and maintain a system to pre-  
22 dict the locations of future wildfires for fire-prone areas  
23 of the United States.

24 (b) COOPERATION; COMPONENTS.—The system es-  
25 tablished under subsection (a) shall—

1           (1) be based on, and enhance, similar systems  
2           in existence on the date of enactment of this Act, in-  
3           cluding the Fire Danger Assessment System; and

4           (2) use a combination of soil moisture levels,  
5           precipitation patterns, topography, fuels growth and  
6           availability, ignition risks, and temperatures to cal-  
7           culate probabilities of wildfires igniting or burning in  
8           fire-prone areas of the United States.

9           (c) USE IN FORECASTS.—Not later than 1 year after  
10          the date of enactment of this Act, the Secretaries shall  
11          use the system established under subsection (a), to the  
12          maximum extent practicable, for purposes of developing  
13          any wildland fire potential forecasts.

14          (d) COORDINATION.—The Secretaries may share the  
15          system established under subsection (a), and any results  
16          generated in using the system, with any State or unit of  
17          local government.

18          **SEC. 11. STUDY ON AIRCRAFT OPERATING AT NIGHT.**

19          (a) STUDY.—Not later than 1 year after the date of  
20          enactment of this Act, subject to the availability of appro-  
21          priations, the Secretaries shall conduct a study to deter-  
22          mine the feasibility of operating aircraft at night when  
23          managing wildland fires.

24          (b) PARTNERSHIPS.—In conducting the study under  
25          subsection (a), the Secretaries may enter into a partner-

1 ship with any State center of excellence with experience  
2 relating to aerial firefighting.

3 **SEC. 12. TERMINATION OF AUTHORITY.**

4       The authority provided by this Act terminates on the  
5 date that is 10 years after the date of enactment of this  
6 Act.