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Stephen R. Kratzke,

Associate Administrator for Rulemaking.

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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. NHTSA–2005–20967]

Federal Motor Vehicle Safety Standards

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Denial of petition for rulemaking.

SUMMARY: This document denies a petition from the Rubber Manufacturers Association (RMA) to conduct rulemaking to amend the Federal motor vehicle safety standard on tire selection and rims to require manufacturers of new motor vehicles to establish a recommended cold inflation pressure (placard pressure) for their vehicles using a tire pressure reserve. The tire pressure reserve would be based on the minimum pressure the RMA believes is necessary to support the vehicle's maximum load at the activation pressure of the installed tire pressure monitoring system (TPMS). The agency has decided to deny the petition because neither the RMA's nor the agency's data demonstrate a safety need for such a requirement.

FOR FURTHER INFORMATION CONTACT: The following persons at the National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC, 20590: For technical issues: Mr. George Soodoo or Mr. Ezana Wondimneh, Office of Crash Avoidance Standards (Telephone: 202–366–2720) (Fax: 202–366–7002). For legal issues: Mr. Eric Stas, Office of the Chief Counsel (Telephone: 202–366–2992) (Fax: 202–366–3820).

SUPPLEMENTARY INFORMATION:

I. Executive Summary

A. The RMA's Petition

The Rubber Manufacturers Association [1] submitted a petition for rulemaking [2] to NHTSA to amend Federal Motor Vehicle Safety Standard (FMVSS) No. 110, Tire Selection and Rims, to include a tire pressure reserve sufficient to permit the tires to carry the vehicle maximum load at the threshold activation pressure for illumination of the low tire pressure telltale (a lighted indicator) under FMVSS No. 138, Tire Pressure Monitoring Systems. Pursuant to FMVSS No. 138, the under-inflation warning threshold for the TPMS is set at 25% below the vehicle manufacturer's recommended cold inflation pressure or a minimum activation pressure corresponding to the type of tire, whichever is higher.

The Tire and Rim Association (TRA) establishes and publishes guidelines, by tire size, for recommended tire load and tire pressure. The TRA guidelines, along with similar publications by other specified tire industry organizations, incorporate detailed tables that are used by vehicle manufacturers when deciding on original equipment tires and the recommended tire pressure to place on the vehicle's tire placard. The tire placard is located on the driver's side B-pillar and is intended to inform vehicle owners of the proper tire inflation pressure level.

In addition to the tire placard information, pursuant to a statutory mandate, the agency has recently issued a Final Rule establishing requirements to ensure that vehicle owners are informed when a tire is significantly under-inflated. These systems, known as tire pressure monitoring systems, will detect and warn consumers within 20 minutes after a tire's inflation pressure drops to 25% below the vehicle manufacturer's recommended inflation level. The primary function of a TPMS is to detect under-inflation caused by slow leaks that may otherwise go unnoticed. TPMS are not substitutes for proper tire maintenance. Instead, they provide a supplemental system to assist in informing vehicle owners when maintenance is needed.

The RMA's petition postulates that the pressure in a vehicle's tires at maximum load may fall below the recommended value in the TRA tables before the TPMS warning telltale provides its alert. According to the RMA, the tables specify the minimum pressure that should be recommended for each tire at the vehicle's maximum load. Following this reasoning, if a vehicle manufacturer recommends a placard pressure with less than a 25% margin above what is required to support the vehicle's maximum load, the tires could conceivably fall below the TRA specified value before the TPMS warning telltale illuminates. The RMA asserted that a vehicle driven under such conditions (below TRA specified values) is overloading its tires and that this may lead to tire degradation and, ultimately, to tire failure.

The RMA cited a recent NHTSA study finding that 26% of passenger cars—and 29% of pick-up trucks, sport utility vehicles, and vans—had at least one tire that was under-inflated by at least 25% below placard pressure.[3] The RMA also submitted calculations from a sample of 100 vehicles (model years (MY) 1997 to 2003) indicating that 61% would not have sufficient pressure reserve at maximum load (based on the TRA tables) if the vehicle's tire pressure were to fall to 25% below placard pressure.[4] Finally, the RMA relied on a telephone survey of motorists, which reported that 67% of those surveyed would be less concerned about checking their tire pressure if their vehicles were equipped with a TPMS.

From these data, the RMA concluded that NHTSA's tire standards must be amended to provide a reserve load so that drivers are not lulled into a false sense of security that may lead them to rely exclusively on the TPMS. The RMA argued that the TPMS could encourage drivers to neglect proper tire maintenance, leading in turn to an increased risk of driving on overloaded tires and resulting tire failures.

B. NHTSA's Research To Consider the Petition

The Secretary of Transportation has delegated rulemaking authority under 49 U.S.C. Chapter 301 to prescribe motor vehicle safety standards to NHTSA.[5] However, in order to issue such standards, the agency must make a determination that the standard (or amendment to an existing standard) is practicable, meets the need for motor vehicle safety, and is stated in objective terms.[6] Consistent with this statutory directive, NHTSA's regulations related to the requirements for petitions for rulemaking state that the petition must ''[s]et forth facts which it is claimed

[1] The Rubber Manufacturers Association is a national trade organization representing tire and rubber manufacturers in the United States. Its membership includes: (1) Bridgestone/Firestone Americas Holdings, L.L.C, (2) Continental North America, Inc, (3) Cooper Tire and Rubber Company, (4) The Goodyear Tire and Rubber Company, (5) Michelin North America, Inc., (6) Pirelli Tire North America, and (7) Yokohama Tire Corporation.

[2] Docket No. NHTSA–2005–20967–1.

[3] Docket No. NHTSA–2000–8572–74.

[4] We note that the RMA submitted calculations based upon two sets of data that together totaled 100 vehicles. For the purposes of this notice, we have combined these two data sets as a single weighted average. We have done this both for ease of use and because the distinctions between those data sets do not impact our resolution of the RMA's petition.

[5] *See* 49 CFR 1.50.

[6] 49 U.S.C. 30111(a).

establish that an order is necessary.''[7] If the above criteria have not been met, the agency may not issue a final rule. Accordingly, the RMA's petition must be analyzed in the context of whether sufficient evidence exists as would permit rulemaking to proceed.

In considering the RMA's petition, we reviewed our research relating to whether TPMSs may affect attitudes toward tire maintenance and conducted a comprehensive new study to assess whether there is any correlation between reserve load and real world tire failures.

Because it is possible that some drivers might postpone tire pressure checks until the TPMS warning telltale illuminates, we decided to study actual driver behavior by examining the incidence of inflation pressure checks (as indicated by tire inflation levels) for both TPMS-equipped vehicles and non-equipped peer vehicles.[8] The study examined 2,316 vehicles, 1,259 of which were equipped with TPMSs (213 direct TPMSs and 1,046 indirect TPMSs).[9]

We also studied whether a 25% reserve load requirement is likely to have an impact on real world tire failures. Through Special Orders, we collected detailed data from both tire and vehicle manufacturers to compare the risk of tire failure as a function of tire pressure reserve. The data included details of tire failures reported as claims to tire manufacturers and the distribution in the fleet of pressure reserves as tallied by vehicle manufacturers.

Our purpose was to study how the risk of tire failure varied with pressure reserve for original equipment tires on light vehicles. We used a variety of statistical techniques (including simple correlations and failure-time models) to search for a pattern of failure. We sought and received input on our analytic approach from the Consumer Product Safety Commission and the Department of Transportation's Bureau of Transportation Statistics.

C. Summary of the Agency's Findings

Having reviewed the RMA's data and positions, and having conducted our own analysis into the issues raised in the petition, we have concluded that the data do not substantiate a safety need to establish such a tire pressure reserve requirement under FMVSS No. 110. We have reached this result because:

- The RMA's data regarding the impacts of TPMS installation were based on the results of a self-reported telephone survey and did not involve an objective analysis of actual vehicle operating conditions through direct observation (*i.e.*, by checking tire pressure levels). NHTSA's survey results, which did involve direct measurement of vehicles' tire pressure levels, found that the existence of TPMSs in new vehicles would not cause drivers to neglect routine tire maintenance.
- The RMA's petition gives the mistaken impression that vehicles are regularly loaded to their maximum vehicle weight. In fact, most vehicle trips involve the driver alone, without significant vehicle cargo. NHTSA s data show that, under normal loading conditions with tires inflated 25% below placard pressure, only 11% of vehicles would have overloaded tires.[10]
- Our research demonstrates that even for vehicles found to have tires under-inflated by 25% or more, tire failures are rare events. In a recent study,[11] the total number of tire failure claims reported to the agency was 52 per one million vehicles or a lifetime failure rate of approximately 0.0052 percent for non-recalled tires.[12]
- Agency data suggest that the presence or absence of a tire pressure reserve has little bearing on tire failures, a finding which goes to the heart of the RMA's petition. Specifically, NHTSA examined available data to see whether a high tire pressure reserve resulted in fewer tire failures. We found that the data for certain vehicles with a tire pressure reserve suggested (but did not establish) a lower incidence of tire failures. However, in other cases, the data for vehicles with a tire pressure reserve suggested (but again did not establish) a higher incidence of tire failures. Not only were the results conflicting, but in none of those cases were the results statistically significant.
- RMA's calculations, which the RMA uses to characterize the sufficiency of the tire pressure at maximum vehicle load, are based solely upon deviation from the values reported in the TRA tables. The RMA has not demonstrated the likelihood that operation of a vehicle at tire pressures somewhat below these values is likely to result in tire failure. In light of the above, the available data suggest that the problem articulated in the RMA's petition is essentially a theoretical one and is inconsistent with real world data that show a relatively small number of actual tire failures.
- We expect that a tire pressure reserve requirement for new light vehicles would have major technical and economic ramifications for the automotive industry, with an estimated annual cost of $132 million. Given the absence of a demonstrated safety benefit, the data do not support passing these relatively large costs on to consumers. We do not agree with the assertion that vehicle manufacturers could accommodate a 25% tire pressure reserve load requirement, and incur no substantial cost, by raising the recommended tire inflation pressures or by specifying larger tires with more load carrying capacity for their vehicles.

D. Conclusion

In light of the above, the agency has concluded that: (1) The RMA has not provided sound evidence to suggest that installation of a TPMS will mislead consumers into believing that their tires are properly inflated whenever the TPMS warning telltale is not illuminated; (2) the RMA's data have not demonstrated that vehicles with little or no pressure reserve have a higher rate of failure in the field compared with vehicles having a high tire pressure reserve; and (3) NHTSA's own data demonstrate that a tire pressure reserve requirement, as recommended by the RMA, would not be expected to result in a measurable safety benefit by reducing real world tire failures. Accordingly, we are denying the RMA's petition.

II. Background

In 2000, following numerous motor vehicle fatalities involving failures of defective tires, Congress passed the Transportation Recall Enhancement, Accountability and Documentation (TREAD) Act.[13] Among other things, the TREAD Act directed NHTSA to improve the FMVSSs for tires and to issue a regulation to require installation of TPMSs in new vehicles. In response,

[7] 49 CFR 552.4(c).

[8] Docket No. NHTSA–2005–20967–4.

[9] There are two types of TPMSs currently available, direct TPMSs and indirect TPMSs. Direct TPMSs have a pressure sensor in each wheel that transmits pressure information to a receiver. In contrast, indirect TPMSs do not have tire pressure sensors, but instead rely on the wheel speed sensors, typically a component of an anti-lock braking system, to detect and compare differences in the rotational speed of a vehicle's wheels, which correlate to differences in tire pressure.

[10] Docket No. NHTSA–2005–20967–2, p. 27.

[11] Docket No. NHTSA–2005–20967–2.

[12] Although there is a higher rate for tire failure claims when recalled tires are included, we believe that many failures in those cases would be a product of a defect in the tire itself, rather than a problem associated with tire pressure reserve. Furthermore, it should also be noted that many of reported tire failures may be caused by other factors not related to tire pressure reserve, such as vehicles being operated with grossly under-inflated or overloaded tires, excessively worn high mileage tires, or vehicles being operated in hot climates.

[13] Pub. L. No. 106–414, 114 Stat. 1800 (2000).

NHTSA upgraded several safety standards, including FMVSS No. 110, *Tire Selection and Rims*, and developed FMVSS No. 138, *Tire Pressure Monitoring Systems,* a new standard mandating the installation of automated devices to warn drivers operating motor vehicles with significantly under-inflated tires.

As initially promulgated, FMVSS No. 138 provided for two compliance options. Under either option, the TPMS would illuminate a warning telltale when tire pressure dropped below the higher of either a threshold value (determined as a percentage below placard pressure) or a minimum activation pressure listed in the standard. Option One required a TPMS with a 25% under-inflation warning capability for any combination of tires, up to a total of four tires. Option Two required a TPMS with a 30% under-inflation warning capability for any one tire.[14]

On August 6, 2003, the United States Court of Appeals for the Second Circuit vacated the June 2002 final rule.[15] The Court held that one option, which had a 30%-below-placard threshold, was unlawful because it would permit systems that could not monitor all four of a vehicle's tires. The agency has recently published a final rule adopting a revised FMVSS No. 138 that is consistent with the court's opinion (*i.e.*, requiring a TPMS with a four-tire, 25% under-inflation detection capability).[16] The Court proceedings affected the timing and content of our TPMS rule, but not the analysis of the issues relevant to the RMA's petition.

As part of developing the upgraded FMVSS No. 110 and the new FMVSS No. 138, the agency evaluated tire loading limits and tire pressure reserves for motor vehicles, as well as how often and why vehicles are driven with significantly under-inflated tires. We set forth below a summary of how the agency addressed these topics in order to provide background for understanding the agency's analysis of the RMA petition and the reasons for its denial.

A. Tire Pressure Reserve

FMVSS No. 110 was first issued in 1971. It mandates among other things that all passenger cars sold in the United States be equipped with tires that are capable of carrying the vehicle's maximum loaded vehicle weight at the manufacturer's recommended cold inflation pressure (vehicle placard pressure). Multipurpose passenger vehicles, trucks, buses and trailers must be fitted with tires that are capable of supporting the vehicle's gross axle weight rating (GAWR).[17] In most cases, vehicle manufacturers meet these requirements by consulting standardized tables for tire size, loading, and inflation pressure published by the Tire and Rim Association or other international tire industry organizations.[18]

Vehicle manufacturers may, at their discretion, specify a higher placard pressure for the tires fitted to their products than that provided by the TRA tables to support the vehicle's maximum load. This additional tire pressure is known as ''tire pressure reserve.'' Within bounds, an increase in tire pressure results in an increase in load carrying capacity. The extra load carrying capacity realized, because of the additional tire pressure, is called the ''tire load reserve.''

FMVSS No. 110 also includes a requirement for a tire pressure reserve based on vehicle normal load. ''Vehicle normal load'' is that load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and occupant weight and dividing the result by two. The number of occupants used to determine the ''normal load'' is defined in FMVSS No. 110 as two persons for a vehicle with four seating positions, and three persons for a vehicle with five seating positions. The current standard requires that the vehicle normal load on a tire shall not be greater than 88% of the tire's maximum load rating as marked on the tire sidewall.

NHTSA published a final rule upgrading the standards applicable to tires on June 26, 2003 (68 FR 38116).[19] The upgraded version of FMVSS No. 110 specifies that the vehicle normal load on each tire must not exceed 94% of the tire's load rating at the placard pressure for that tire. The agency noted in the preamble of the final rule for the tire performance upgrade that this change would provide safety improvements without necessitating extensive and high cost vehicle redesigns:

> [V]ehicle manufacturers will be required to insure that the tire reserve load corresponds with the tire's load carrying capabilities when the tire is inflated to the vehicle manufacturers recommended cold tire inflation pressure rather than the tire manufacturer's maximum cold inflation pressure shown on the tire sidewall. The 94% figure was chosen to approximate closely the load reserve that results from the current requirement of 88% based on the load rating at the tire's maximum inflation pressure.
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> By specifying a 94% value based on vehicle normal load, the agency is addressing the vehicle industry's concerns that a significant number of vehicles would otherwise need to be redesigned to accommodate larger tire sizes, while aiming to reflect more accurately actual vehicle loading conditions of vehicles by requiring that each vehicle manufacturer select the appropriate reserve load for that vehicle. The agency has recently conducted a FMVSS No. 110 vehicle normal load evaluation and has concluded that almost all light vehicles could meet a revised criteria for load reserve based on 94% of placard pressure with only a minor increase, *e.g.*, 1 or 2 psi, in this listed inflation pressure to accommodate the new requirement.[20]

This change in calculation of vehicle normal load is intended to more accurately reflect the load based on the vehicle's placard pressure, which may vary from vehicle to vehicle, even when the same tires are used. As noted above, we anticipate that this change in the tire requirements may result in a tire pressure increase of 1–2 psi.

B. Tire Pressure Monitoring Systems

Congress also mandated under the TREAD Act that NHTSA complete ''a rulemaking for a regulation to require a warning system in new motor vehicles to indicate to the operator when a tire

[14] 67 FR 38704 (June 5, 2002).

[15] *See Public Citizen* v. *Mineta,* 340 F.3d 39 (2d Cir. 2003).

[16] *See* 70 FR 18136, (April 8, 2005). Docket No. NHTSA–2005–20586–1.

[17] This requirement was adopted from FMVSS No. 120, *Tire Selection and Rims for Motor Vehicles Other Than Passenger Cars.* Before TREAD Act related upgrades were made (which also consolidated NHTSA's tire standards), passenger cars, and non-passenger cars regardless of their gross vehicle weight rating (GVWR), were covered by FMVSS Nos. 110 and 120 respectively.

[18] Paragraph S4.3.1(c) of FMVSS No. 110 permits the use of standard tire pressure/load tables contained in publications listed in paragraph S4.4.1(b) of FMVSS No. 109 that are current at the date of manufacture of the tire or any later date. Specifically, publications by any of the following international industrial organizations may be used: (1) The Tire and Rim Association, (2) The European Tyre and Rim Technical Organization, (3) Japan Automobile Tire Manufacturers' Association, Inc., (4) Tyre & Rim Association of Australia, (5) Associacao Latino Americana de Pneus e Aros Brazil, or (6) The South African Bureau of Standards.

[19] The June 23, 2003 final rule pertained to FMVSS No. 109, *New Pneumatic Bias Ply and Certain Specialty Tires,* FMVSS No. 110, *Tire Selection and Rims for Motor Vehicles with a GVWR of 4,536 Kilograms (10,000 Pounds) or Less,* FMVSS No. 119, *New Pneumatic Tires for Motor Vehicles with a GVWR of More Than 4,536 Kilograms (10,000 Pounds) and Motorcycles,* FMVSS No. 120, *Tire Selection and Rims for Motor Vehicles with a GVWR of More Than 4,536 Kilograms (10,000 Pounds),* and FMVSS No. 139, *New Pneumatic Radial Tires for Light Vehicles.*

[20] 68 FR 38116, 38141 (June 26, 2003).

is *significantly* under-inflated'' (emphasis added). We note that Congress did not mandate a system that would signal whenever a tire deviated from placard pressure. To do so would likely result in nuisance warnings that eventually could cause drivers to ignore the TPMS.

The agency commenced research studies to support the TPMS rulemaking. In February 2001, NHTSA's National Center for Statistics and Analysis (NCSA) conducted a national survey involving 11,530 vehicles.[21] The tire pressures of the study vehicles were recorded when they came into one of a number of randomly selected gas stations located across the country. NCSA found that 26% of passenger cars—and 29% of pick-up trucks, SUVs and vans—had at least one tire that was underinflated by at least 25% below the placard pressure. This study was designed to assess the level of tire under-inflation for light vehicles on the road (*i.e.*, the target population for the TPMS standard).

The agency established FMVSS No. 138, a new standard requiring light vehicles (*i.e.*, vehicles with a GVWR of 4,536 kilograms (10,000 pounds) or less) to be equipped with tire pressure monitoring systems that warn drivers when the air pressure in their tires has dropped by a specified percentage below the vehicle placard pressure or a minimum activation pressure listed in the standard that corresponds to the type of tire, whichever is higher. Prior to being vacated by court order, FMVSS No. 138 had two performance options for compliance. Option 1 required a warning when any combination of one to four tires becomes under-inflated by 25%. Option 2 required a warning when one tire becomes under-inflated by 30%. As discussed in the June 2002 final rule, NHTSA's research suggested that illumination of the TPMS telltale at 25% or 30% tire under-inflation (or the minimum activation pressures in Table 1 of that rule) would provide a warning to the driver before any tire became ''significantly under-inflated.''

On September 16, 2004, the agency published a new Notice of Proposed Rulemaking (NPRM) for FMVSS No. 138, *Tire Pressure Monitoring Systems,* which would re-establish the standard in a manner consistent with the Second Circuit's opinion (69 FR 55896). That NPRM proposed to mandate a TPMS that must be capable of monitoring the pressure in each tire and warning the vehicle operator when the tire pressure in any combination of one to four tires drops by 25% or more from the vehicle's placard pressure. That NPRM was followed by a final rule that adopted the four-tire, 25% under-inflation detection requirement as part of the standard.

[21] Docket No. NHTSA–2000–8572–74.

III. The RMA Petition

In July 2002, the Rubber Manufacturers Association petitioned NHTSA to initiate rulemaking to amend FMVSS No. 110, by establishing a new tire pressure reserve requirement for vehicles that have a GVWR of 4,536 kilograms (10,000 pounds) or less. In its petition, the RMA requested that NHTSA require vehicle manufacturers to select tires for their vehicles that are capable of carrying the vehicle's maximum load[22] even if under-inflated by up to 30% from the vehicle manufacturer's placard pressure. This percentage was chosen by the RMA because it corresponded to the minimum drop in tire inflation pressure before the TPMS warning is activated, under the less stringent of the two compliance options contained in the since-vacated June 2002 rule.

In its petition, the RMA stated that consumers who operate their vehicles in a fully-loaded condition, which do not have additional tire pressure (a tire pressure reserve) beyond what is required to support that load, may overload their tires if the inflation pressure decreases below the placard value. The RMA argued that extended operation of the vehicle in this worst-case scenario could result in tire failures.

According to the RMA, for vehicles that have a tire pressure reserve, any reduction in tire inflation pressure that does not exceed that reserve amount would be inconsequential, as the tires would retain sufficient load carrying capacity (based on the TRA tables) for the vehicle's maximum load. However, the RMA argued that in practice, vehicle manufacturers sometimes set a pressure reserve only slightly above the load-pressure values provided in the TRA tables, which means that a tire's pressure may drop below that value prior to reaching the inflation pressure level that would trigger the TPMS low pressure warning lamp.

The RMA further asserted that existing reserve requirements under NHTSA's current tire standards are inadequate to address this problem. Instead, by requiring a tire pressure reserve that is at least the same amount as the decrease in tire pressure that activates the TPMS telltale, the petitioner argued that vehicle operators would always receive warnings whenever tire pressures fall below the pressure required to support the vehicle's maximum load and that, as a result, the overall incidence of tire failures would be reduced.

In its petition, the RMA asserted that unless NHTSA mandates a specified reserve load, its FMVSS would not adequately protect motor vehicle operators from the risks of driving on significantly under-inflated tires. The petitioner claimed that its proposed requirement would address what it considers a ''serious deficiency'' in the TPMS rule, citing survey data from NCSA reflecting the percentages of sampled vehicles with underinflated tires. The RMA petition added: ''There is a substantial risk that the new TPMS standards will, in practice, confuse or mislead consumers into believing that their tires are properly inflated whenever the TPMS warning is not illuminated.''

To support its petition, the RMA provided calculated pressure reserve data, based on maximum vehicle loads, for a sample of 100 vehicles from model years 1997 to 2003. The RMA data suggest that 61% of the sampled vehicles would not have sufficient reserve pressure at maximum load if equipped with a TPMS that activates when the vehicle's tire pressure falls by 25% from the placard pressure, and that 76% of the sampled vehicles would have insufficient reserve pressure if their tires were underinflated by 30% from the placard pressure. The RMA stated that most of the sampled vehicles would overload their tires if operated fully loaded and with them underinflated by 30% from the vehicle placard.

The RMA petition also stated that most vehicles on the road today (61% or 76% depending on the TPMS warning threshold) could experience tire failures if drivers rely solely on TPMS warnings before maintaining their tire pressures. Specifically, the RMA argued that without an additional pressure reserve, drivers may operate their vehicles with tires underinflated from the recommended placard pressure by values ranging from zero to the warning threshold level before they receive a low tire pressure warning.

[22] For purposes here and in the rest of this document, a vehicle's ''full load'' and ''maximum load'' are used interchangeably and mean a vehicle's maximum loaded vehicle weight in the case of passenger cars and the gross axle weight ratings for MPVs, trucks, buses, or trailers.

IV. Agency Analysis

A. Reduction in Proper Tire Maintenance

The RMA petitioned NHTSA to require that vehicle manufacturers

select tires for their vehicles and provide a pressure reserve that would ensure the tires are capable of carrying the vehicle's maximum load even if underinflated by up to 30% from the vehicle placard pressure. The petitioner argued that the agency's TPMS rule (for systems capable of the now-vacated 30% under-inflation detection level or the current 25% under-inflation detection level) does not adequately protect motor vehicle operators from driving on significantly under-inflated tires because there is a substantial risk that the TPMS standard will, in practice, confuse or mislead consumers into believing that their tires are properly inflated whenever the TPMS warning telltale is not illuminated.

On August 19, 2003, the RMA provided comments to the NHTSA Docket on TPMS.[23] The RMA indicated that its comments were, among other things, intended to supplement the materials submitted with its petition. Included in this submission were the results of a national consumer telephone survey of motorists' tire maintenance attitudes (700 participants) and did not involve any tire pressure measurements. The RMA survey found that 67% of motorists would be less concerned with checking tire pressure if their vehicles were equipped with a TPMS.

Agency Response

The agency does not anticipate that consumers will come to believe that tire maintenance is unnecessary unless and until the TPMS warning telltale is illuminated. The agency believes that sufficient measures are in place to ensure that TPMSs operate as a supplement to regular tire maintenance, not as a substitute for it. Tire pressure monitoring systems are designed to detect slow and progressive reductions in tire pressure that may occur while driving (the standard requires the system to alert the driver within 20 minutes after the tire pressure has fallen below the requisite level) or when there is a significant decrease in tire pressure between regular tire pressure checks. The agency continues to mandate that tire pressure information be made clear to the vehicle owner on the driver's side B-pillar and in the owner's manual and that information on the importance of regular tire maintenance also be provided.

For example, NHTSA's final rule for TPMS (S4.5) requires vehicle manufacturers to include specified owner's manual language that describes the importance of routine tire maintenance and the role of the TPMS. Specifically, the vehicle owner's manual must provide, in relevant part: ''Each tire, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire information label. * * * Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale.''

NHTSA has also stressed the importance of proper tire maintenance as part of its consumer information program. For example, the agency has published and distributed a brochure on tire maintenance and repair titled ''Tire Safety: Everything Rides On It,'' with key highlights posted on the NHTSA Web site.[24] Additional tire maintenance information is posted on NHTSA's Safercar.gov Web site.[25]

We are concerned with placing too heavy a reliance on the RMA's telephone survey because it did not involve actual observation of vehicle conditions (*i.e.*, by checking tire pressure levels).[26] RMA's survey only provided consumers' subjective opinions regarding tire maintenance. As a result, it is not possible to know whether the survey participants actually followed through with their claimed behavior. Nor did the RMA survey identify owners of TPMS-equipped vehicles, a group whose tire maintenance behavior may be most revealing when trying to assess the potential impact of TPMS on continuing maintenance.

Other studies have more directly assessed the actual impact of TPMSs on tire inflation pressure levels, and they suggest that TPMSs may have a positive impact on tire pressure maintenance. The Alliance of Automobile Manufacturers (Alliance) submitted the results of a TPMS survey conducted by General Motors (GM) at its dealerships in Michigan.[27] In that study, the tire pressures were measured on 267 vehicles—211 vehicles with no TPMS, 32 vehicles with an indirect TPMS, and 24 vehicles with a direct TPMS.

The results of the General Motors real-world study indicated that the measured inflation pressure distribution for the vehicles with a direct TPMS was centered at 1% above placard pressure. The measured inflation pressure distribution for the vehicles with an indirect TPMS was centered at placard pressure, and the measured inflation pressure distribution for the vehicles with no TPMS was centered at 2% below placard pressure. The results of the study further indicated that TPMS-equipped vehicle distributions are centered tightly around the placard pressure, and not close to the TPMS warning activation pressure level.

In addition, NCSA recently completed a study on TPMSs that bears on the issue of tire inflation pressure maintenance. (A copy of the NCSA study can be found at Docket No. NHTSA–2005–20967–4.) In that study, data were collected on 2,316 vehicles ranging from passenger cars to light trucks. There were 213 vehicles equipped with direct TPMSs and 1,046 vehicles equipped with indirect TPMSs. The remaining 1057 vehicles were selected for use as baseline peer vehicles and were not equipped with any TPMS.

The data were analyzed by comparing the recommended tire inflation pressure for each vehicle to actual measured tire pressure. The average level of under-inflation was found to be 11% for vehicles equipped with indirect TPMSs and 5% for those equipped with direct TPMSs. The peer comparison vehicles[28] without TPMSs were found to have levels of under-inflation of 14% and 9%, respectively.

The 2,316 vehicles in the NCSA TPMS study were part of a complex random sample where vehicles had an unequal probability of selection from the population. Furthermore, data collection was terminated at an early stage due to the Court of Appeals' decision to vacate the TPMS standard, and as a result, the study did not reach the planned target sample size of 7,000 inspected vehicles. These factors could affect the results presented above because the sample may not be representative of the vehicle population. To address this concern, NCSA computed sample weights to adjust for the unequal probability of selection and to examine whether the results using the

[23] Docket No. NHTSA–2000–8572–271.

[24] *See http://www.nhtsa.dot.gov*

[25] *See http://www.safercars.gov/Tires/.*

[26] The RMA's petition also cited data from a July 2001 Bureau of Transportation Statistics (BTS) omnibus survey which found that 65% of the respondents would be less concerned with routinely maintaining their tire pressures if their vehicles were equipped with a TPMS (*see* 67 FR 38704, 38718 (June 5, 2002)). However, like the RMA's telephone survey, this BTS survey did not include an observational component to determine whether consumers followed through on those opinions by decreasing their tire maintenance. Accordingly, we have the same concerns with the BTS survey as we do with the RMA's survey data.

[27] Docket No. NHTSA–2000–8572–246.

[28] PEER vehicles are control group vehicles and include vehicles of the same model years, similar body styles and price ranges to the TPMS vehicles, but which do not have TPMS.

raw (unweighted) data were affected by the sample selection. The analysis of weighted data found the average level of under-inflation to be 7% for vehicles equipped with indirect TPMSs and 6% for those equipped with direct TPMSs. The peer comparison vehicles without TPMSs were found to have levels of under-inflation of 9% and 10%, respectively. The differences between vehicles with TPMS and the peer vehicles are very similar to the results presented above, and thus the conclusions do not appear to be affected by the sample selection. The weighted differences, however, did not achieve statistical significance at conventional levels.

In spite of the lack of statistical significance, we believe that the observed differences between vehicles with and without TPMS are real for at least two reasons. First, the finding is robust to both an analysis of the raw and weighted data. Second, the lack of statistical significance in the weighted analysis can be explained in part by the early termination of the study, which resulted in a smaller sample size and larger effects of the sample design on the estimated standard errors than would have occurred with the full study.

The studies involving actual measurements of tire pressures suggest that drivers of TPMS-equipped vehicles engage in proper and regular tire maintenance and do not ordinarily wait for the TPMS warning before adding inflation pressure to their tires. Indeed, TPMS-equipped vehicles may, on average, have better maintained tire pressure. If these findings are correct, an expansion of TPMS fleet penetration could potentially bring similar inflation pressure improvements to all light vehicles, thereby positively impacting the target population identified in the earlier NCSA study.

The RMA's assertion that TPMS would confuse or mislead consumers into believing that their tires are properly inflated whenever the TPMS warning is not illuminated is largely based on its telephone survey. Because we have concerns about that survey and because other studies suggest a different result, we do not believe the data support a conclusion that the TPMS rule is likely to result in a potentially dangerous decline in regular tire maintenance.

B. Tire Pressure Reserve To Offset Drops in Tire Pressure

The RMA also argued that vehicle manufacturers should be required to provide a tire pressure reserve for their vehicles sufficient to offset drops in tire pressure that may occur before consumers are warned by the installed TPMS. The RMA argues that in order to prevent tire failures and protect consumers, vehicle manufacturers should be required to specify tires for their vehicles that can carry the vehicle's maximum load while operating at pressures that range from the placard pressure down to the TPMS warning threshold pressure.

The RMA provided calculations of pressure reserve, based on maximum vehicle loads, for 100 sample vehicles from model years 1997 to 2003. The vehicles selected were from the following categories: sports car (11%), compact (14%), mid-size (20%), full-size (8%), luxury (19%), sport utility vehicle (SUV) (8%), van (15%), and pick-up truck (5 percent). In summary, 72% of the RMA sample vehicles were passenger cars and 28% were light trucks.

The RMA's tire pressure reserve calculations showed that 61% of the vehicles would have tire pressures below the pressures specified in the TRA tables for such loadings if (1) the vehicles in the study were equipped with a TPMS having a 25% below placard activation threshold, and if (2) the vehicles were operated with tire pressures just under the activation threshold, and if (3) the vehicles were fully loaded to their maximum weight rating. Alternatively, with the same assumptions as stated above, the RMA's calculations showed that 76% of the sampled vehicles could have pressure below the values listed in the TRA tables if their tires were under-inflated by 30% from the placard pressure. As a result, the RMA concluded that the placard pressure for many vehicles on the road today would be insufficient to carry the maximum load of the vehicle without over-deflecting the tires and causing tire damage, if the tires are operated at a level of under-inflation close to the TPMS activation threshold.

Agency Response

The agency is not convinced that the calculations presented by the RMA reflect real-world conditions. The RMA's concern is premised on an assumption that operating below the values listed in the TRA tables is unsafe. We have been unable, however, to find any real world data to confirm that assumption. The RMA did not provide factual evidence showing that a pressure reserve requirement in itself would significantly reduce tire failures. And NHTSA's research, the details of which follow below, did not demonstrate a link between tire pressure reserve and tire failures. In addition, we are not aware of data, and the RMA has not provided any, showing that the RMA's sampled vehicles experience increased tire failure rates.

The RMA data were developed assuming each of the sample vehicles is at its maximum loading condition. However, the data also indicate that many of these vehicles, when operating under normal load conditions (the most common situation), would be within the load-pressure operating range specified by the TRA tables, even when they are under-inflated by 25% or 30% from placard pressure. In fact, NHTSA's data, which are based on a sample of 100 million vehicles, show that only 11% of the vehicles would have overloaded tires at normal loading condition when their tires are under-inflated 25% below placard pressure.[29]

As defined earlier, the ''normal load'' on a vehicle is the typical load experienced during normal operation of the vehicle, which includes the vehicle curb weight, accessory weight, and the combined weight of the appropriate number of occupants. Moreover, there are no data showing that any vehicles have experienced higher tire failure rates due to the absence of a pressure reserve.

The RMA's conclusion rests on industry-based TRA tables. However, the RMA has not provided any evidence to correlate tire inflation pressures at 25% below the values published in the TRA tables with real and significant safety consequences. Despite the fact that over a quarter of light vehicles on the road today having at least one tire under-inflated by at least 25%, as shown in the previously-discussed NCSA study, the data do not show large numbers of tire failures, as one might expect if in fact tire overload as defined by the TRA tables were the underlying cause of tire failure. It appears likely that the tire industry tables are conservative and may contain some built-in safety margin.

In addition, an examination of the engineering formulae that serve as the basis for the TRA tables reveals that they are largely empirical and depend only on tire dimensions, as opposed to any material, design, construction, or loading factors. It is noteworthy that neither the RMA nor the TRA has provided NHTSA with technical or engineering data that would demonstrate a relationship between tire failures and load carrying capacity as defined in the TRA tables for pressures within the 25% threshold of a TPMS.

[29] Docket No. NHTSA–2005–20967–2, p. 27.

NHTSA Data

While RMA did not present data sufficient, in our view, to support granting its petition, the agency nonetheless decided to conduct independent research to determine whether a high tire reserve load correlates with a reduction in tire failures.

The question of whether a pressure reserve requirement can reduce tire failures was first explored in a study conducted for NHTSA in the early 1980s. [30] It examined whether there was a correlation between tire reserve load (which is equivalent to tire pressure reserve) and tire failure rates. The study analyzed a total of 1,760 tire failure records from MY 1974–1978 vehicles manufactured by General Motors, American Motors, Volkswagen, Datsun (currently known as Nissan), Toyota, Honda, Chrysler, and Ford. The tire reserve load values for groups of similar models produced in that period were collected from the vehicle manufacturers.

After assigning each of the tire failure records to a particular vehicle group with a tire reserve load value, normalizing the data by the sales volumes for all the vehicles, and looking for a relationship between the frequency of tire failures and vehicles with different levels of tire reserve load, the study results were inconclusive. No correlation was found between tire failure rates and tire pressure reserve for vehicles manufactured by Ford, American Motors, and the import manufacturers, but there were increased tire failure rates as pressure reserve increased for Chrysler vehicles, and decreased tire failure rates as pressure reserve increased for General Motors vehicles.

Based upon the results of the February 1981 study, NHTSA prepared an analysis titled, ''The Relationship Between Tire Reserve Load Percentages and Tire Failure Rates,''[31] which concluded that there existed no consistent or reliable relationship between tire reserve load and tire failure rates. Accordingly, NHTSA decided at that time not to include a tire pressure reserve requirement in FMVSS No. 110.

Nevertheless, because vehicles and tires have changed over the past 25 years, NHTSA decided, in response to the RMA petition, to conduct an expanded and more comprehensive study to examine whether there now exists a relationship between tire pressure reserve and tire failure for light vehicles with a GVWR of 4,536 kilograms (10,000 pounds) or less.

This more detailed study was designed to examine tire failure rates as a function of tire pressure reserve for the entire population of light vehicles sold in the United States from model years 1996 through 2002.[32] In January 2003, NHTSA issued Special Orders to vehicle and tire manufacturers and collected data on the total number of tire failure claims [33] reported by consumers to those entities. The agency also collected data on vehicle production volumes and the pressure reserve values of every unique vehicle-tire group [34] for those model years. A total of 24 vehicle manufacturers and 9 tire manufacturers reported 18,533 claims that occurred on 14,039 unique vehicle-tire groups, to the agency. The data represent just over 109 million vehicles that were produced during the model years examined under the study.

NHTSA examined separately P-metric tires (that are primarily intended for use on passenger cars but are often used on pick-up trucks and SUVs) and light truck (LT) tires. The data were also separated by one of four vehicle types (passenger car, SUV, van, and pick-up truck) and by axle (front vs. rear). The tire failure claim rate was lowest for passenger cars and vans equipped with P-metric tires. It was highest for pick-up trucks and SUVs equipped with LT tires. Claims were generally more common for tires on the rear axles of vehicles and for LT tires.

Next, NHTSA calculated tire failure rates as a function of tire pressure reserve for 14 possible combinations of tire type, axle, and vehicle type. These were: P-metric tires on the front and rear axle of passenger cars (2 combinations); and P-metric and LT tires on the front and rear axles of pick-up trucks, SUVs, and vans (2×2×3 or 12 additional combinations). Of these, there was sufficient information on 10 combinations of vehicle type, axle, and tire type for analysis. These were P-metric tires on both axles of all four vehicle types, and LT tires on pick-up trucks.

From there, the agency calculated tire failure rates for each of the 10 combinations and found only one statistically significant result suggesting an association between tire failure and tire pressure reserve (P-metric tires on the rear axle of passenger cars). However, one result is not sufficient to establish this relationship with any reasonable certainty. In a series of 10 tests, there is a high statistical probability of finding a result that appears to be significant, but is actually a matter of chance. In other words, even if there was no correlation between tire failure claims and tire pressure reserve, the agency would expect to find at least one result showing correlation (*i.e.*, a false positive) about 40 percent of the time. Based on these results, the agency has concluded that comparisons of tire failure as a function of pressure reserve yield inconclusive results. These results are consistent with those of the 1981 study discussed above.[35]

In order to confirm the results of the tire pressure reserve study, the agency also used a failure-time model with the Special Order data, which once again indicated conflicting results in terms of the impact of tire reserve load on the

[30] The study, published in February 1981, was conducted by Chi Associates, Inc. This study can be found in NHTSA Docket No. 81–09–NPRM–N01–001.

[31] Docket No. 81–09–NPRM–N01–002.

[32] The final report discussing the Special Order data and NHTSA's analysis can be found in the NHTSA docket, number NHTSA–2005–20967–2. The report is titled: ''Data Submitted in Response to the Special Order on Tire Reserve Pressure.''

[33] The Special Orders defined ''tire failure'' as meaning the following: (1) Belt-to-belt separation, (2) belt edge separation, (3) sudden loss of inflation pressure, (4) separation of tread, sidewall, ply cord, inner liner, or bead, (5) chunking, (6) broken cords, (7) cracking, and (8) open splices. Tire failure was defined further as the manufacturer's ''opinion about the alleged failure mode and cause (from the list of 8 failure modes/causes listed under the definition of ''tire failure,'' specify all failure modes and causes that apply).''

The Special Orders defined ''claim'' as meaning ''a written request or written demand for relief, including money or other compensation, assumption of expenditures, or equitable relief, related to a motor vehicle crash, accident, the failure of a component or system of a vehicle or an item of motor vehicle equipment, or a fire originating in or from a motor vehicle or a substance that leaked from a motor vehicle. Claim includes, but is not limited to, a demand in the absence of a lawsuit, a complaint initiating a lawsuit, an assertion or notice of litigation, a settlement, covenant not to sue or release of liability in the absence of a written demand, and a subrogation request. A claim exists regardless of any denial or refusal to pay it, and regardless of whether it has been settled or resolved in the manufacturer's favor. The existence of a claim may not be conditioned on the receipt of anything beyond the document(s) stating a claim. Claim does not include demands related to asbestos exposure, to emissions of volatile organic compounds from vehicle interiors, or to end-of-life disposal of vehicles, parts or components of vehicles, equipment, or parts or components of equipment.''

[34] A ''vehicle-tire group'' means a category of vehicle possessing identical specifications for the following identifiers: vehicle make, vehicle model, model year, number of doors, number of drive wheels, gross-axle weight rating, make/model and size(s) of original equipment tires on each axle, and manufacturers recommended inflation pressure for tires on each axle.

[35] We note that NHTSA has found this low incidence of actual tire failures, as revealed in the claims data in our study, to be repeated in laboratory testing as well. As noted in the June 5, 2002 final rule for TPMS, the agency tested a variety of Standard Load P-metric tires at 20 psi with 100 percent load at 75 mph for 90 minutes on a dynamometer. None of the tires failed. (*See* 67 FR 38704, 38726.)

probability of tire failure, none of which were statistically significant. Consequently, this model also did not establish a safety benefit associated with a tire pressure reserve.

However, because this latter model produced a value that approached significance (p value = 0.06), we decided to use these results to develop a hypothetical estimate of the costs and benefits of a tire pressure reserve, for the moment assuming that an association had been demonstrated. The details of this analysis have been placed in the docket,[36] but the following summarizes the key points.

Using this model, we produced an estimate of 2.15% fewer tire failures if all new vehicles were required to be fitted with tires that had, at a minimum, 8 psi of pressure reserve. If we assume that these changes would produce a proportionate reduction in tire-related deaths and injuries, then we can apply 2.15% to data from the Fatality Analysis Reporting System (FARS), the General Estimates System (GES), and the National Automotive Sampling Survey (NASS) to produce an estimate of safety benefits. Extrapolating from a previous NHTSA analysis,[37] the agency estimates that the potential benefits would be prevention of 731 crashes (with roughly $2 million in property damage and travel delay savings), 4 fatalities, and 96 injuries in all cases involving blowouts or flat tires. However, this target population of all blowouts or flat tires is larger than could be impacted by tire reserve load, as many flat tires are caused by running over a hazardous object in the road and are not caused by factors influenced by tire reserve load. Thus, the unproven benefits listed above likely overstate the true potential benefits, although the magnitude of this overstatement is unclear.

In terms of costs, the RMA proposed that vehicle manufacturers could accommodate a tire pressure reserve requirement by simply raising the recommended tire inflation pressures or by specifying larger tires with more load carrying capacity for their vehicles. We do not believe this to be the case. We believe that a tire pressure reserve consistent with RMA's recommendation would have major technical and cost ramifications for the automotive industry and consumers, which could amount to approximately $132 million per year. For many vehicles, an increase in tire pressure of up to 8 psi may be necessary to meet the RMA's recommended tire pressure reserve, but increases of this magnitude could cause ride comfort to decrease considerably. In such cases, an increase in tire size would be needed, thereby triggering production changes and associated cost increases. Again, for a more complete discussion, please see the analysis of costs and benefits placed in the docket.[38] Given that the agency's careful review of the data has found no demonstrable safety benefit from a tire pressure reserve requirement as would justify rulemaking, it is unlikely that imposition of these costs on consumers could withstand scrutiny under the rulemaking process.

V. Conclusions

The agency is not persuaded by the RMA's arguments that a tire pressure reserve requirement for light vehicles equipped with TPMSs is needed, for three reasons: (1) NHTSA does not agree with the RMA's claim that the TPMS standard will mislead consumers into believing that their tires are properly inflated whenever the TPMS warning telltale is not illuminated, because the petitioner has not provided compelling evidence that shows this to be the case; (2) the RMA did not provide data to show that tires on vehicles with little or no pressure reserve have a higher rate of failure in the field compared with vehicles having a high tire pressure reserve; and (3) the agency's independent studies have not shown a reliable or conclusive relationship between tire pressure reserve and tire failure claims in the field.

For the reasons stated above, the agency is denying the petition. In accordance with 49 CFR Part 552, this concludes the agency's review of the petition.

Authority: 49 U.S.C. 322, 30111, 30115, 30117, and 30162; delegation of authority at 49 CFR 1.50 and 501.8.

Issued on: May 13, 2005.

Stephen R. Kratzke,

Associate Administrator for Rulemaking.

[FR Doc. 05–9989 Filed 5–18–05; 8:45 am]

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[36] Docket No. NHTSA–2005–20967–3.

[37] ''Final Regulatory Evaluation, FMVSS No. 139, New Pneumatic Tires for Light Vehicles,'' NHTSA, June 2003, p. S–2 (Docket No. NHTSA–2003–15400–2).

[38] Docket No. NHTSA–2005–20967–3.

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AT31

Endangered and Threatened Wildlife and Plants; 12-Month Petition Finding and Proposed Rule To Delist the Mexican Bobcat (*Lynx Rufus Escuinapae*)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; notice of finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce the 12-month finding that a petition to delist the Mexican bobcat (*Lynx rufus escuinapae*) under the Endangered Species Act of 1973, as amended (Act, or ESA), is warranted. The best available information indicates that the Mexican bobcat may not constitute a separate subspecies and does not constitute a distinct population segment (DPS). Despite habitat modification by humans, the bobcat remains abundant throughout Mexico. Accordingly, we herein propose to delist the Mexican bobcat under the Act. The Service seeks data and comments from the public on this proposed rule.

DATES: Comments and information may be submitted until August 17, 2005. Public hearing requests must be received by July 5, 2005.

ADDRESSES: Submit comments, information, and questions to the Chief, Division of Scientific Authority, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 750, Arlington, VA 22203, USA; or by fax (703–358–2276) or by e-mail (*scientificauthority@fws.gov*). Comments and supporting information will be available for public inspection, by appointment, from 8 a.m. to 4 p.m. at the above address.

To request copies of the regulations regarding listed wildlife or inquire about prohibitions or permits, write to: Division of Management Authority, 4401 North Fairfax Drive, Room 700, Arlington, VA 22203, USA. Alternatively, you may contact us by telephone (703–358–2104; toll free, 1–800–358–2104), fax (703–358–227), or e-mail (*managementauthority@fws.gov*).

FOR FURTHER INFORMATION CONTACT: Dr. Javier Alvarez at the above address; or by telephone (703–358–1708), fax (703–358–2276), or e-mail (*scientificauthority@fws.gov*).

SUPPLEMENTARY INFORMATION: