Georgia Department of Audits and Accounts
Performance Audit Division

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Why we did this review

The Department of Natural Resources Law Enforcement Division (LED) is charged with protecting Georgia's natural resources. We conducted this audit to determine whether LED's field operations unit has:
1) distributed and assigned wardens appropriately; 2) coordinated effectively with partners for law enforcement services; and, 3) adopted cost-effective technology to improve conservation law enforcement.

About LED

As the state's "off-the-pavement" law enforcement, LED enforces hunting, fishing, boating, and environmental laws, provides support for public safety on DNR-managed properties, and coordinates with other law enforcement entities as necessary. While LED's core mission is to protect Georgia's natural resources, wardens are POST-certified sworn officers and have authority to enforce all state laws.

Organized into six regions, LED has 234 positions, 207 of which are POST-certified sworn officers (as of March 2020). Within regions, counties are grouped geographically into work units, which typically consist of a team of 5-7 game wardens. Collectively, the team of wardens is charged with conducting law enforcement activities within the work unit.

In fiscal year 2019, division expenditures totaled $30.1 million, with approximately 80% from state general funds and license fees.

Department of Natural Resources Law Enforcement Division

Improved methods to distribute, assign, and monitor wardens are necessary

What we found

The Department of Natural Resources Law Enforcement Division (LED) does not currently maintain data required to completely and accurately identify the demand for warden presence and services throughout the state. Because LED has not established a process to collect data on calls for service, the type, volume, location and time of requests for warden services is not known. This data is critical to guide management decisions on warden assignments.

Data necessary to fully establish warden service demand are not maintained.

Although management has made efforts to collect some relevant warden activity and performance data, significant deficiencies remain because of shortcomings in collection instruments, record retention practices, and inadequate information system structures. As a result, management's ability to fully and accurately account for warden activities, measure productivity, and align warden resources to historic law enforcement demand patterns or planned patrols is compromised. Some of the issues can be remedied immediately with modest changes, but some will require creating information system infrastructure designed for the task.

Wardens are not distributed across the state in proportion to the volume of law enforcement actions.

LED primarily pursues a warden distribution model that is based on geopolitical boundaries (e.g., number of counties in a region) and not one primarily pursuant to service demand or LEA patterns. More than 25% of law enforcement actions occurred in 4 of 29 work units and were executed by 13% of all game wardens. More

than 50% of law enforcement actions occurred in 10 of 29 work units and were executed by 36% of all game wardens.

Law enforcement actions consistently occur in higher volume during weekend days but occur unevenly among regions, units and counties. For example, during weekend days, LED work units executed on average between 1.8 and 8.3 law enforcement actions. During weekdays, work units executed on average between 0.3 and 1.8 law enforcement actions. Especially high-volume areas are linked to destinations within counties, such as popular water bodies or state parks. Daily schedule designs (in conjunction with warden distribution methods) suggest that LED can better align warden resources to times and locations of highest law enforcement risk.

Planning, execution, and reporting of LED activities on DNR properties can be improved.
Other divisions (State Parks & Historic Sites, and Wildlife Resources) and LED should improve coordination and strategic planning efforts to ensure that law enforcement needs are identified, incorporated into LED work efforts, and reported. Historically, LED has not developed consistent methods to identify and integrate the law enforcement risks of partner divisions to inform overall warden geographic distribution and assignments, nor have DNR partner divisions received reports of law enforcement activities that were planned or conducted on their behalf or on their property.

Adopting a risk-based strategy for distributing cameras and providing instruction for use would increase the patrol capability of LED.
Although LED has acquired dozens of field cameras to expand warden force capacity to patrol and monitor simultaneously across multiple locations, the division can improve operations by adopting a risk-based strategy to better distribute this technology.

What we recommend

We recommend that LED improve its data collection methods to ensure that records of warden work activities are complete, accurate, and retrievable. This data should be reportable at various time and geographic scales and should be used by management to monitor and measure warden and work unit productivity to inform warden distribution, assignments, scheduling, and patrol planning. LED should also consider adjusting the scheduling protocols and/or the daily work hour assignments to ensure work hours align with times of highest law enforcement risk.

LED should update its methodology for assigning wardens to regions, work units, and counties to reflect the demand for and risk of law enforcement activity. In doing so, it should collect and analyze additional data (including calls for service).

LED should also develop methods to periodically receive data from partner divisions, consider this information in warden assignments, and develop methods to report activities back to these stakeholders. Finally, LED should develop a more strategic method to distribute field cameras based on expected need.

See Appendix A for a detailed listing of recommendations.

Agency Response: DNR LED indicated its agreement with the report.

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Audit Purpose

This report examines the Law Enforcement Division (LED) of the Department of Natural Resources (DNR). Specifically, the audit determined the extent to which LED has:

- distributed and assigned its sworn warden work force appropriately,
- coordinated effectively with other partners for law enforcement services, and
- adopted cost-effective technology to improve conservation law enforcement.

The scope of this review is limited to the field operations and the management of those operations. A description of the objectives, scope, and methodology used in this review is included in Appendix B. A draft of the report was provided to the LED to review, and pertinent responses were incorporated into the report.

Background

Purpose and History

The Georgia General Assembly created the DNR game warden unit in 1911, making it the oldest statewide law enforcement agency in Georgia. In 2018, LED completed a five-year transition from a subdivision of DNR's Wildlife Resources Division (WRD) to an independent division.

LED is responsible for enforcing hunting, fishing, boating, and environmental laws, providing public safety on all DNR-controlled property, and serving outdoor enthusiasts and the public throughout Georgia. While LED's core mission is to protect Georgia's natural resources, game wardens maintain a certification from the Georgia Peace Officer Standards and Training Council (POST) and have the authority to enforce all state laws. LED regularly coordinates with federal, state, county, and municipal law enforcement agencies to provide additional support.

Overview

Organizational Structure

LED is headquartered in Social Circle, Georgia. As shown in **Exhibit 1**, LED divides the state into six regions and each has a regional office headquarters. [1]

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[1] Prior to January 1, 2020, LED was organized into seven regions. In response to budget reduction request by the Governor, LED eliminated operations of a regional office in Macon (Bibb County). This audit relies on data and operations prior to the elimination of the region, so much of the analyses focus on seven regions. A map of the prior regional alignments is presented in Appendix C.

Exhibit 1
LED is Divided into Six Regions with Headquarters
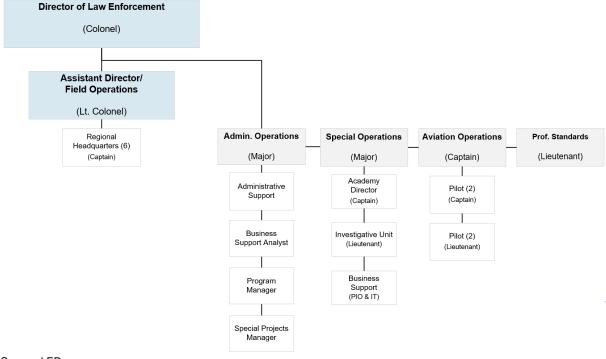
★ LED Regional Office

☆ LED Headquarters

Source: LED

LED functions under a military chain of command led by a Colonel who serves as the Director of Law Enforcement. The Director is supported by a Lieutenant Colonel (who serves as Assistant Director), two Majors, and a Captain. The Lieutenant Colonel, Majors, and Captain oversee four operational units, with the Lieutenant Colonel overseeing regional offices and field operations. Collectively, these managers make up the LED command staff.

Exhibit 2
LED Headquarters Organizational Chart

Source: LED

Operations

As of March 1, 2020, LED has 234 positions. Of these, 207 are POST-certified sworn wardens. LED headquarters is organized into four operational units: field, administrative, special, aviation, and an office of professional standards. (See **Exhibit 2**.) Each unit is discussed in detail below.

- **Field Operations**: The primary responsibility of the unit is to enforce all laws, regulations, and policies pertaining to the protection and conservation of cultural and natural resources of Georgia. Field Operations provides law enforcement for state parks, wildlife management areas, public fishing areas, heritage trust properties, historical sites, and all other property owned or controlled by DNR. Field operations is the largest unit within LED, with nearly all 207 POST-certified game wardens conducting field operations in some capacity.

The Lieutenant Colonel commands overall field operations, with a captain overseeing each region. **Exhibit 3** shows the general organization of LED regional field operations. Captains are supported by an Administrative Sergeant responsible for regional administrative operations including budget, purchase requests, and monitoring/inspecting inventories.

Within regions, counties are grouped geographically into work units, which are supervised by Field Sergeants and typically consist of a team of 5-7 wardens of various ranks (e.g., Corporals and Game Wardens). Collectively, the team of wardens is charged with responding to complaints, conducting investigations,

and patrolling the area. It is common for an individual warden to be assigned a primary territory, such as a county.

Game wardens patrol state parks, wildlife management areas, major bodies of water, and other DNR property in their assigned work unit. While patrolling, game wardens conduct (hunting and fishing) license checks, inspect fish and wildlife harvested from the area, inspect boating licenses and vessels, and provide a general presence and visibility that acts as a deterrent against violations of laws, regulations, or policies related to Georgia's natural resources. In addition to regularly patrolling the aforementioned areas, game wardens frequently respond to service calls received from the public. Game wardens assess the calls, determine if a violation of law, regulation, or policy has occurred, and conduct the necessary police work to resolve the call, if possible. Game wardens also provide additional support to federal, state, county, and municipal law enforcement agencies.

Exhibit 3
Regional Field Office Organizational Chart with Work Units

*Work units consist of a supervising field sergeant to whom a team of game wardens (various ranks) directly report.
Regions currently have between 4 and 5 work units and are typically staffed with between 5 – 7 wardens each.

Source: LED

- **Administrative Operations**: The primary responsibilities of the unit include budgeting, purchasing, and human resources. Other responsibilities include the management of education programs, the Ranger Hotline, port security, special permitting, and headquarters facilities and grounds. Commanded by the Administrative Operations Major, the unit consists of seven full-time staff.

- **Special Operations:** This unit performs specialized functions outside the scope of the other divisions and responds to boating accident investigations, marine theft, hunting fatalities, and the smuggling of exotic or dangerous animals. Select game wardens across all regions are assigned to units within Special Operations as a secondary duty. The Special Operations division of LED is comprised of nine full-time headquarters staff commanded by the Special Operations Major.

- **Aviation Operations**: This unit provides aerial support to game wardens in the field utilizing LED helicopters. Aircraft are available on a statewide basis according to incident priority and both Sergeant and Captain approval. The unit is comprised of three full-time pilots, one part-time pilot, two aircraft mechanics, and is commanded by the Aviation Operations Captain.

- **Office of Professional Standards**: This unit is responsible for the review of LED policies and procedures and conducts annual internal review of the organization designed to ensure LED controls are functioning. OPS also

investigates complaints on officers and allegations of misconduct. The unit is operated by one Lieutenant.

Partners

As described below, LED provides law enforcement services for other DNR Divisions, as well as federal, state, and county agencies.

DNR Divisions

LED interacts most frequently with the State Parks & Historic Sites and Wildlife Resources Divisions. State Parks & Historic Sites manages 63 state parks that offer a variety of activities including hiking, biking, fishing, boating, historic enactments, and sporting events. LED patrols facilities and lands of State Parks & Historic Sites, enforces applicable laws and regulations, and responds to calls and complaints from both the public and staff. Wildlife Resources Division oversees approximately 1 million acres of land across more than 100 state-owned wildlife management areas, as well as more than 500,000 acres of lakes and 16,000 miles of streams. In addition to patrolling, LED provides coordinated enforcement of hunting and fishing rules and regulations established by WRD.

LED patrols historic sites and consults with staff to verify artifacts when recovered through law enforcement actions. It also works with the Coastal Resource Division along Georgia's coastline to patrol marshlands and shoreline, and to enforce fishing, shellfish harvesting, and boating regulations.

Other Law Enforcement Entities

LED also works with federal, other state, and local agencies as needed. For example, it has worked with the National Oceanic and Atmospheric Administration and the National Marine Fisheries Service. In addition, in accordance with O.C.G.A. 27-1-18, LED has the power and authority to assist the Department of Public Safety and the Georgia Bureau of Investigation upon request. It provides support during natural disasters, major events, and special investigations. Finally, LED can provide support to county sheriffs and local police upon request.

Personnel Management

LED upper management establishes the primary geographic assignment for game wardens by allocating wardens to regions and assigning them to work units therein. This primary assignment is designed to ensure LED has patrol and response coverage for each of Georgia's 159 counties. Although warden assignment is primarily county-based, wardens may be designated to major points of interest with high work volume (e.g., highly visited lakes). As a result, the number of wardens within regions and work units generally reflect the number of counties in the area and any additional wardens assigned to points of interest.

Wardens work according to a centrally-developed schedule that applies to all regions. It is divided into four work groups. When new wardens are hired, they are assigned to an empty position in the work unit, and then assigned to a work group by the field sergeant. Aside from the direction to work during "peak volume times" wardens have autonomy to determine when and how many hours to work each day. As a result, wardens may not work contiguous hours. For example, a warden may work from 5 a.m. to 9 a.m., go off duty, and resume work from 3 p.m. to 7 p.m.

Information Systems

LED utilizes three data collection methods/information systems to conduct, assist, and track game warden activities, including a computer automated dispatching system, a records management system for warnings and citations with a records database and querying program, and game warden activity/time reports. A brief summary of each is below.
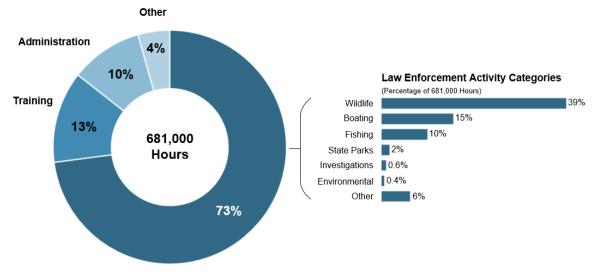
- **Computer Automated Dispatch System (CAD):** Emergency calls or service calls are received through CAD, which is operated by the Georgia State Patrol, and routed to the mobile terminal located in the game warden's patrol vehicle. Wardens may also manually log calls into the CAD. Therefore, the CAD data includes the calls received directly and those manually logged.

- **Records Management System (RMS)[2]:** Official law enforcement actions taken by game wardens (including issuance of warnings, citations, and incident reports) are created, saved, and stored in RMS. The system also has a reporting component that allows LED management to run queries on the data.

- **Bi-Monthly Activity Report (BMARs):** Wardens use BMARs to document vehicle mileage, activity counts (e.g., number of licenses checked), and the number of hours spent on wildlife, fishing, and boating enforcement, search and rescue work, and administrative duties. There is also a narrative section for brief summaries of daily work, which may include details not captured in other portions of the report, such as the name of the property patrolled or the location of a search and rescue effort. Wardens are required to submit a BMAR to their immediate supervisor twice per month.

Activities

During fiscal years 2017-2018, LED wardens issued 16,515 warnings and 15,022 citations. In addition, wardens completed 3,624 incident reports, of which 256 were for boating incidents. Wardens logged approximately 681,000 hours during the period. General law enforcement activities accounted for 73% of reported hours; remaining hours were spent on training (13%), administrative (10%), and other activities (4%). **Exhibit 4** provides a breakdown of law enforcement activities.

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[2] During the audit, RMS was subject to a ransomware attack. As a result, the audit team could not access the system. In the absence of direct access, the team used reports from the system that had been retained by the chief IT staff member at LED.

Exhibit 4
Wardens Reportedly Spent 73% of their Time on Law Enforcement Activities
Fiscal Years 2017-2018

Source: LED BMAR Summary Data

Financial Information

LED receives funding from three sources: state appropriations, federal grants, and miscellaneous funds such as payments from other agencies. As shown in **Exhibit 5**, LED received approximately $30.7 million in fiscal year 2019.

Exhibit 5
LED Fund Sources and Expenditures, Fiscal Years 2018 and 2019

	2018	2019
Fund Sources		
State Appropriations	$24,584,544	$25,211,477
Federal Grant Funds	$4,015,884	$4,769,512
Agency/Other Funds	739,786	$779,562
Total	$29,340,214	$30,760,551
Expenditures		
Personnel Services	$23,070,199	$25,038,074
Operating Expenses	$4,792,301	$4,884,837
Motor Vehicle Equipment	$1,164,211	$435,425
Telecomm. & Other	$288,521	$325,758
Total[1]	$29,315,232	$30,684,094

[1] LED maintains a balanced budget for all state funding. The total expenditures in the table do not match the total fund sources because federal grant funds operate on the federal fiscal year rather than the state fiscal year, and excess federal funds can be carried over to the following year.

Source: Fiscal Year 2018 and 2019 TeamWorks Budget Comparison Reports

Fund Sources
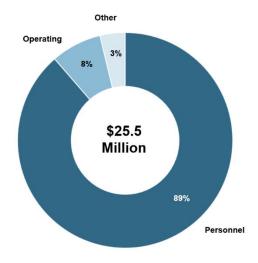
In fiscal year 2019, state appropriations, which are composed of state general funds and remitted license fees, accounted for more than 80% of LED funds.[3] Since fiscal year 2015, state appropriations have increased by 45% (approximately $8 million). In fiscal year 2018, hunting and fishing license fees were increased, which generated additional funds for LED. These fees represented $9.3 million of the total state appropriation.

LED receives federal grants for providing services such as emergency response, port security, boating and hunter education, and enforcement of conservation laws and regulations in federal offshore fisheries.

Expenditures of State Funds

As shown in **Exhibit 6**, because LED's primary mission and functions are service-driven, personnel expenses constitute the majority (89%) of its state fund expenditures. Personnel services include salaries, insurance, and retirement. Operating expenses represent 8% of state expenditures and include fleet maintenance, utilities, supplies and materials, and travel. Finally, LED assigns each game warden a patrol truck, and all-terrain vehicle (ATV), and in some regions, a patrol boat. This combined fleet represents 6% of LED's annual state funds expenditure. Costs related to the actual equipment are captured in the "Other" category; fuel and maintenance costs are categorized as "Operating" expenditures.

Exhibit 6
89% of State Fund Expenditures were for Personnel
Fiscal Year 2019

Source: LED Records

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[3] Revenue generated by issued citations is collected and kept by the counties where citations are issued. Revenue is not remitted to LED.

Findings and Recommendations

Workforce Distribution, Assignment, and Performance Management

Finding #1: Game warden location assignments do not align with patterns of law enforcement actions; however, more data is required to completely and accurately identify warden demand.

Law Enforcement Actions include citations, warnings and incident reports

LED management primarily pursues a warden distribution strategy based on the number of counties in a region, not one primarily based on service demand or patterns of law enforcement actions. (See *LED Warden Distribution Method*, next page.) While LED has data on law enforcement actions, it does not have complete information on calls for service, which may or may not result in an official law enforcement action, such as a citation or warning issuance. To fully establish the demand for wardens' presence and services throughout the state, LED needs more complete information on the volume, type, and location of calls for service (or complaint calls). Currently, wardens receive calls for service through a variety of means, ranging from formal (e. g., official dispatch from a centralized operator system) to informal methods (e.g., an in-person request from local landowners). LED does not currently collect and maintain complete data on calls for service in a manner that can be retrieved and analyzed.[4]

We analyzed records of citations, warnings, and incident reports from state fiscal years 2017 and 2018 to approximate the geography and volume of a two-year service demand model.[5] We found that these actions occur in uneven distribution patterns throughout the state, within regions, work units, and counties. As discussed in the following sections, there were significant differences in the number of actions by work units, and the average number of actions by warden was significantly higher in certain regions.

Although law enforcement actions are the most complete data set available currently to evaluate LED demand, a more detailed set of information including calls for service is necessary for any complete analysis of demand. Using an analysis of the law enforcement actions in isolation, without accurate records on the volume, type, and location of calls for service, is not ideal for management in considering warden distribution throughout the state. As noted earlier, calls for service are valid actions that may never result in the issuance of a citation, warning, or incident report.

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[4] LED does have official dispatch records; however, staff estimate that these represent only 30% of all calls.
[5] Wardens record the number of complaints they have bimonthly through the BMAR system, which has certain limitations (as described in Finding 3). Approximately 11,000 complaints were reported across the two-year period, compared to approximately 30,000 law enforcement actions during the same period.

LED Warden Distribution Method

LED's warden distribution method is designed to ensure that the force can patrol and respond to calls for service in each of the state's 159 counties. Wardens design and execute patrols and take lead on service calls (and any subsequent follow-up) within their assigned county boundary. While they are also expected to conduct work within the larger work unit, the basic method of distributing wardens is primarily county-based.
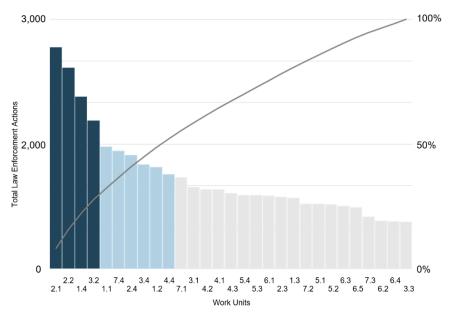
When tasked with configuring the warden work force, LED management considers which counties do not have wardens assigned and works with regional captains to distribute wardens according to the perceived need in primary assignments to ensure geographic (i.e. county) coverage. In some cases, major points of interests—such as frequently visited lakes or the coastline—may substitute for county assignment, but this method is not the primary pursuit of warden distribution. As a result, the number of desired warden assignments within a region or a work unit corresponds to the number of counties in the region or unit plus any additional warden assignments considered necessary to address additional volume of work. In these instances, more than one warden may be assigned to a county or a point of interest.
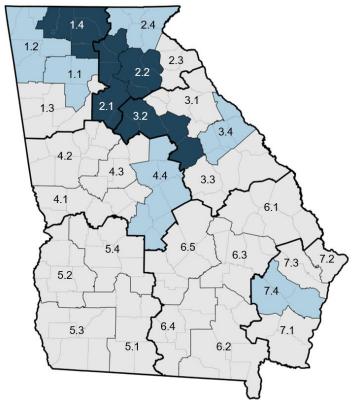
Law Enforcement Actions by Work Units

We analyzed law enforcement action by regional work units to identify patterns of volume and subsequent implications for management to consider for work unit and warden distribution and assignment.

Law enforcement actions occur in uneven distribution patterns throughout the state, regions, and within work units. As shown in Exhibit 7, slightly more than 50% of the actions that were executed during the 2-year period (16,534 of 31,793) occurred in 10 of the 29 work units, while more than 25% of the actions (8,749) were executed by 4 of the 29 work units. The highest volume of work occurred in the northern part of the state.

Exhibit 7
Most Law Enforcement Actions Occurred in 10 Work Units
Fiscal Years 2017 – 2018

Note: Numbers on the map above represent work units. Work unit numbers are coded as:
[Region #] . [Unit #]

Source: LED data, PAD analysis

Law Enforcement Actions by County
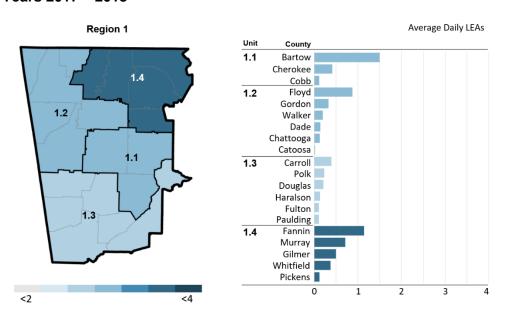
The pattern of uneven geographical distribution of law enforcement actions occurs within work units as well as between them, and high levels of law enforcement volume can often be tracked further down to a specific county (or counties) within the work unit. In some instances, this pattern appears to be driven by popular points of interest, like lakes and areas with very high visitation rates.

Exhibit 8 provides an example of this pattern and presents the daily average of law enforcement actions executed by each of the four work units in Region 1 during state fiscal years 2017-2018. Work Unit 1.4 had the highest daily average of law enforcement actions during the period with 2.8 per day. However, even within the work units, the number of law enforcement actions per county varies. For example, Fannin county, produced one of the highest daily average law enforcement actions of any county in the region (1.1), while Pickens county within the same work unit produced one of the lowest daily averages (0.1) of any county in the region. This pattern is consistent throughout the state, with counties (and points of high visitation within those counties) contributing disproportionately to overall volume and daily averages. Appendix D contains additional information for all 29 LED work units during the period.

Exhibit 8
Daily Average Law Enforcement Actions Vary across Work Units and Counties
Fiscal Years 2017 – 2018

Source: LED data, PAD analysis
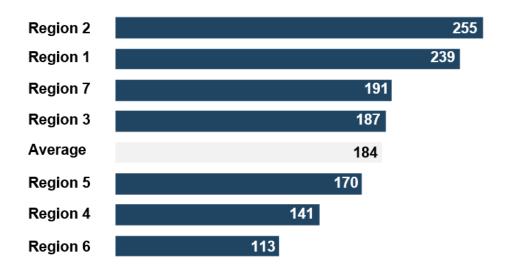
Law Enforcement Actions Per Warden

As expected, regions with the busiest work units executed a higher per-warden volume of law enforcement actions than regions with less overall volume. As shown in **Exhibit 9**, wardens executed an average of 184 law enforcement actions each during state fiscal years 2017 – 2018. However, LED Region 1 and Region 2 executed an average of 255 and 239 law enforcement actions per warden during the period, while other regions had significantly fewer law enforcement actions per warden while being staffed with a comparable or greater number of wardens.

Exhibit 9
Average Number of Law Enforcement Actions by Warden Varied Significantly
Fiscal Years 2017 – 2018

Region	Actions
Region 2	255
Region 1	239
Region 7	191
Region 3	187
Average	184
Region 5	170
Region 4	141
Region 6	113

Source: LED data, PAD analysis

To better ensure its wardens are located in the areas with the highest work volume, LED should develop procedures to analyze and distribute its workforce using the best data it currently has available. It should establish methods to identify geographic patterns that can be predictably expected to contain the heaviest levels of law enforcement risk. Additionally, it should also incorporate all valid service calls, as this data could identify areas throughout the state with high volumes of demand that may not result in a proportionate number of law enforcement actions. To date, LED has not established standards, practices, or geographic information systems to ensure this type of data is recorded or retrievable for management to consider, as explained in this and subsequent findings.

RECOMMENDATION

LED should update its historical method for distributing wardens throughout the state by using data that identifies patterns of law enforcement actions and risks, including calls for direct warden services (e.g., complaint calls).

Finding #2: Game warden time assignments do not align with patterns of law enforcement actions; however, more data is required to completely and accurately identify warden demand.

As indicated in the previous finding, LED does not currently collect and maintain data on service calls, which is necessary to completely and accurately derive demand for warden services. Using law enforcement actions, we identified the day and date of each citations, warnings, and incident reports that occurred during a two- year period to approximate the demand by day and time of year. For the regions reviewed, we found more activity of weekends and during specific seasons of the year; however, activity varied greatly by work unit.

For the three regions we were able to review, wardens, on average, worked fewer number of hours per day on weekend days compared to weekdays.[6] As a result, approximately 70% of on-duty hours were executed during weekdays, when far fewer law enforcement actions occurred. LED currently requires wardens to work three out of four weekends during a 28-day cycle; however, wardens self-assign which and how many hours to work each day they are on-duty. Based on the following information, LED should assess whether and how-to adjust its master scheduling protocols and/or the methods of daily work hour assignments.

Law Enforcement Actions by Day

The daily average number of law enforcement actions is higher on the weekend days than weekdays (see **Exhibit 10**). This difference in law in enforcement actions is especially prominent among work units located in the northern portions of the state where the largest overall volume of law enforcement actions occur. On weekend days, the average number of actions by work units ranged from 1.7 to 8.3, with a statewide average of 3.5. During weekdays, the average number of actions by work unit dropped significantly (even among the busiest work units) from a daily average of 0.3 to 1.8, with a statewide average of 0.7. This pattern is consistent during all periods of the year across all work units. Appendix E provides similar charts for all of the regions during the weekends and weekdays.

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[6] Hourly activity at the daily level was only available for three of the seven regions.

Exhibit 10
Daily Average Law Enforcement Activity Drops Substantially during Weekdays
Fiscal Years 2017 – 2018

Note: Numbers on each map represent work units. Work unit numbers are coded as: [Region #] . [Unit #]

Source: LED data, PAD analysis

Law Enforcement Actions by Season

Although the most prominent differences in the volume of law enforcement actions occurs between weekdays and weekends, there are also variations in volume that are detectable and distinct among seasons of the year throughout the state. These variations could be another factor to consider in determining how to efficiently staff various areas of the state. After consulting with LED, we divided the calendar year into three seasons relevant to DNR divisions: fishing and turkey season (February – May), boating season (June – August), and deer season (September – January).

We found variations in the number of law enforcement actions executed by regions, work units, and counties during these three seasons. For example, law enforcement actions spike in certain work units or counties during periods throughout the year. As shown in **Exhibit 11**, in Bartow county (which contains much of Lake Allatoona) law enforcement actions are far greater than other counties in the region during boating season. This pattern is consistent across regions, work units, and counties.

Exhibit 11
Work Unit Law Enforcement Action Patterns between Seasons during Weekends/Weekdays
Fiscal Years 2017 – 2018

Region 1 Daily Law Enforcement Actions, by Season
by Work Unit, Weekends FY17&18

Fishing/Turkey   **Boating**   **Deer**

[1] Scale represents the largest work unit LEAs for each season.
Totals are broken out by county.

Source: LED records, PAD analysis

Appendix E provides seasonal and weekend/weekday charts for all regions, work units, and counties.

RECOMMENDATION

In addition to improving data collection, LED should consider whether to adjust either the master scheduling protocols or the methods of daily work hour assignments/permissions to better ensure that work hours align with times of highest law enforcement risk.

Finding #3: LED can improve reporting capabilities to track activity and productivity for regions, work units, and wardens.

Significant limitations with available data, due to the data collection methods, information system limitations and record retention, mean it is not possible to fully document, verify, or evaluate warden time and activity records. LED records law enforcement actions in the Records Management System (RMS) and the Bi-Monthly Activity Report (BMAR). Neither system individually provides complete data to accurately analyze the type and patterns of LED service demand, warden or work unit activities, or performance. For example, LED's BMAR cannot report the historical number, status, or outcomes of calls for service, the relative productivity of work units, or the productivity of wardens during weekdays vs. weekends. The RMS does not contain information on non-law enforcement activities.[7] The inability to run reports showing basic activity data prevents anyone from readily identifying performance results or assessing the return on investment of decisions such as warden assignments and patrol designs.

It should be noted that, prior to the development of the BMAR system, LED management did not have access to basic summary activity data in an electronic form. While this step was significant, LED should improve methods of data collection to ensure that data on warden work activities are complete, accurate, and retrievable. This data should be reportable at various time and space scales, and this data should be used by management to monitor/measure warden and work unit productivity to inform warden distribution, assignments, scheduling, and patrol planning.

Improving time and activity tracking could be accomplished through developing a new in-house system or purchasing a database system designed specifically for tracking and reporting this type of time and activity data. However, LED has indicated it does not have staff who specialize in this sort of system development and a DNR official indicated it is currently unable to develop a system because of cost constraints. Absent the ability to move forward with replacing the system, LED should take steps to improve existing systems as discussed in the following sections.

The RMS is operated and managed by DNR LED and is used to document official law enforcement actions such as warnings, citations, incident reports, and complaints. RMS is not designed to capture on-duty work hours or other warden activities that do not result in a law enforcement action.

The BMAR is a Microsoft Excel™ spreadsheet that captures vehicle mileage, on-duty hours, hours by general work category (e.g., training, search and rescue, wildlife enforcement), and activity counts for non-law enforcement actions (e.g., license checks, patrols, and complaints) by warden by day. Wardens are responsible for recording the data and submitting it to their immediate supervisors. BMARs also include a narrative section for a brief summary of daily activity, such as the location and name of the property patrolled.

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[7] Limitations related to accessing data are related to BMARs, not RMS. RMS data is retrievable using either standardized reports from a system interface or using SQL. During the audit, the RMS system was compromised due to an attack from a hacker that temporarily compromised access to the system's data. However, we were able to access data from historical records maintained outside the main system.

Due to issues described below, daily activity records are only available for three of the seven regions. Additionally, compiling the data required advanced data extraction methods that should not be necessary for LED management to adopt as part of standard procedure to access valuable warden and work unit activity data. Instead, LED can take immediate steps correct these issues.

- *Converting daily data to monthly summaries prevents management from being able to analyze daily and weekly activity of wardens, work units and region.* Currently wardens report data on each day's activities. However, this information is aggregated and repackaged, and there is no requirement to maintain the original electronic data.

  Because BMAR data is collected using spreadsheet forms and not via a centralized information system, these records must be compiled and manipulated manually in order to unify and repackage the data into a format that can be provided to management for analysis. Each month, staff in each region manually create a summary document from their wardens' individual BMARs; the summary document contains one row of data, with 113 fields, for each warden. This manual process is an attempt to convert hundreds of monthly BMAR files into a single data set that LED leadership can use to develop management information in summaries and reports.

  However, in addition to being time consuming, labor intensive, and vulnerable to transposition error, the repackaging process degrades valuable data (and valuable reporting that could be developed from it) significantly by converting detailed daily information into only a single monthly summary record. This procedure prevents the organization from being able to analyze daily (or even weekly) activity or productivity of wardens, work units, or regions by converting daily records into a monthly record.

  With electronic daily data, LED management can produce summary reports using different time scales (e.g., daily, weekly, seasonally) similar to ones based on RMS data and presented in this report. As our analyses show, significant patterns of activity and productivity emerge throughout the state, within regions, and between work units when data are divided by days of the week and seasons of the year.

- *Converting electronic records to paper documents and destroying the original records makes analysis significantly more difficult.* LED does not have an official policy requiring regions to retain the original electronic versions of the files. Of the seven regions, four did not retain electronic BMARs in the original electronic form in which they are completed and submitted. Instead, these offices indicated that their protocol for record retention was to print physical versions of the BMAR, destroy the electronic file, and store the printed version in a filing cabinet. We estimated that it would have taken us approximately six weeks to transpose BMARs from physical records into a usable electronic format for one region.[8]

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[8] We chose not to dedicate time and cost to reconstruct these records, in part, due to data reliability concerns of the underlying data.

- *Developing a system for analyzing data by regional work units would allow LED to package data and measure the activity and productivity of the work units.* Currently, data is not collected in the BMAR or RMS system that permits management to run reports by work unit. However, the work unit is an appropriate unit for tracking and measuring field operations because work units are the lowest level within the organization that independently identify and coordinate operations among teams of wardens. It is at the work unit level that wardens are normally assigned on and off-duty days, are expected to work across county boundaries, and coordinate patrols or complaint response and follow-up. Without the work unit as a data point, management is unable to track or measure any information about operations through its primary unit for field operations management.

> *Complaint Process Lacking*
>
> *Wardens do not enter all complaints received into an information system that allows management to inventory the number and status of complaints.*
>
> *At a minimum, LED should collect information on when it receives a complaint, how and who responded to it and when, and the date it was closed. Criteria for classifying complaints as active, inactive, and closed should be communicated clearly and applied consistently. Management and wardens should be able to view all active complaints.*

- *Collecting additional data elements would assist LED in analyzing productivity.* Although the BMAR collects over 100 data points and tallies many activities reported by game wardens, a lack of supporting details related to these activities prevent management from conducting more advanced performance assessments. For example, LED counts warden activities such as the total number of hunting licenses checked, total number of patrols conducted on state properties, and total number of complaints received. But relevant details such as the name of the property patrolled or the status of the complaints (e.g., active, inactive, resolved) is not collected. These types of additional data points are necessary to truly assess warden/work unit productivity (e.g., how many of the planned patrols for the period were conducted?) and outcomes (e.g., what percentage of complaints remain unresolved after 60 days?).

- *Ensuring data entry is consistent across wardens and regions is necessary to protect data quality.* During interviews, field personnel indicated that reported figures may not be always be actual counts of work. For activities such as license checks, for example, wardens may approximate the number of checks conducted during a period when entering data into the form. This is problematic because wardens may be incentivized to inflate estimates because this type of data is reported in performance evaluations.

  Our limited testing on the data revealed inconsistencies. For example, we compared the reported number of WMA patrols tallied in the BMARs to the appearance of the patrols reported in the narrative portion of the forms and the results were widely variant. We also compared the count of complaints identified in the BMAR with counts documented in the RMS; records were significantly different.

  LED should use BMAR data from prior periods with caution. LED should consider methods that can help improve the reliability of data entered into the organizations' primary activity and performance record.

RECOMMENDATIONS

1. LED should improve methods of data collection to ensure that records of warden work activities are complete, accurate, and retrievable.

2. Data collection should be reportable by time and geography.

3. Data should be used by management to monitor/measure warden and work unit productivity to inform warden distribution, assignments, scheduling, and patrol planning.

Coordination and Strategic Planning

Finding #4: LED should better coordinate and integrate information into its planning to ensure it is meeting DNR's law enforcement needs.

LED is charged with patrolling over 60 parks and historic sites, 500,000 acres of lakes, 16,000 miles of streams, and 1 million acres of land across more than 100 wildlife management areas.

LED can ensure it is focusing activities in the highest risk areas by coordinating better with other DNR divisions, such as State Parks & Historic Sites (SPHS) and Wildlife Resources (WRD). Establishing more formal and consistent communication with these partner divisions can help LED ensure it is meeting their law enforcement needs. Additionally, collecting and sharing information on law enforcement activities with the divisions can facilitate planning and coordination.

These partner divisions rely on LED to provide law enforcement support services. The services provided include responding to calls for assistance, as well as planning and conducting recurring patrols to monitor state parks, wildlife management areas, important waterbodies, infrastructure, and other properties (e.g., federally owned forests) deemed critical to the overall DNR mission.

LED policies cite patrolling DNR properties as a high priority (see **Exhibit 12**); however, it has not established a method to periodically obtain data from the divisions on their needs. Additionally, it has not provided them with activity or outcome reports on the activities planned or conducted on their behalf or on their properties. Historically, LED has not collected and integrated law enforcement risks of partner division properties into its plans for warden distribution and assignments. We obtained data from these divisions to develop a state-wide inventory of properties and identify areas they consider higher risk for law enforcement services. These points are discussed in the following sections.

Exhibit 12
DNR Managed Properties are a Priority for LED Patrols

Patrol Priority	Patrol Type
Initial Complaints and Service Calls	Investigate new complaints. Assist other work units with new complaints.
Follow-Up Complaints and Service Calls	Follow-up on active complaints. Check for complaints with local stakeholders (e.g., landowners, sports clubs, local law enforcement).
DNR Property	Patrol DNR managed/controlled property.
High Visibility Patrols	Patrol areas with high number of complaints
Regional Focus List[9]	Patrol areas of concern for DNR identified in quarterly "focus lists" for regions.
General Law Enforcement Patrols	Patrol (generally) in accordance with peak seasonal activities.

Source: LED Law Enforcement Concept Policy

- Currently communication with partner divisions is largely informal between wardens and their peers in these divisions. Wardens are expected to communicate with partner division personnel to identify concerns or complaints on DNR-managed properties as part of normal duties. Wardens are also expected to ensure that patrols of DNR properties are part of the activity plans they develop. However, as noted in earlier findings, wardens are given authority to plan and execute daily law enforcement activities independently. While they may receive input from their supervising field sergeants, they are not typically required to get patrol plans approved in advance. Unless there is a high-priority matter such as an emergency call for service, wardens typically have authority to plan which hours during an assigned workday they will be on-duty and to "turn left or right out of their driveway" to execute law enforcement activities they plan to conduct.

  Additionally, regional captains have historically developed and disseminated quarterly patrol and other surveillance plans in "focus list" memorandums.[9] The focus lists may provide guidance for wardens as they plan their activities, but there is no accountability to ensure the priorities are included or addressed.

  Neither the creation of quarterly focus lists nor the method of developing and documenting individual game warden plans assures that DNR properties are scheduled to be patrolled. Neither method relies upon or produces a comprehensive inventory of land, water, facilities nor a patrol schedule to ensure that this inventory is integrated appropriately into patrols on an annual, quarterly, bimonthly, weekly, or daily time cycle.

- LED has not established methods or standards for collecting and reporting on its law enforcement efforts on partner division's properties. As a result, these divisions may not know whether actions are occurring or not. As described in the prior finding, LED lacks the ability to run standard reports of activity and performance by warden, work unit, or region on a daily, weekly, or bi-weekly scale.[10]

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[9] According to LED management, the quarterly focus list memorandums have recently been discontinued and will be replaced with a weekly "watch list." As of this report, no policies or instructions have been officially developed.

[10] Because of record retention practices, we were unable to reconstruct records at these scales to document and measure activity and performance for these units.

If data were captured accurately and more effectively, LED could tabulate and report to other DNR divisions (at all levels of management) relevant law enforcement activity and performance results, such as the number of patrols conducted during a quarter on a specific state park or wildlife management area.

- Obtaining data from its partner divisions, and collecting and sharing information back on activities conducted, could help LED establish baseline law enforcement risks in regions, work units, and counties that could be used to inform warden distribution and assignment decisions.
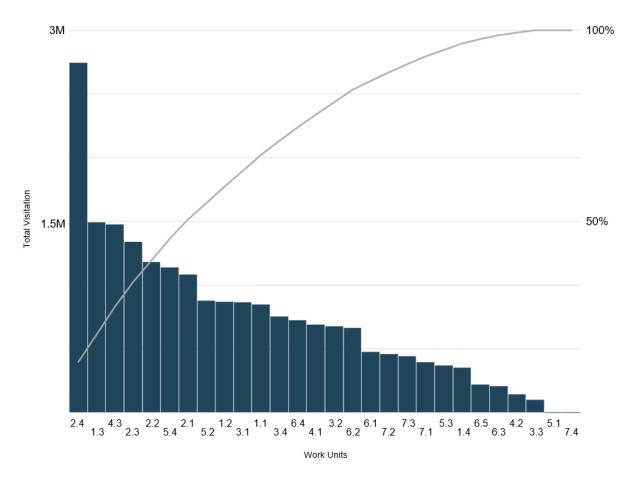
We solicited information from SPHS and WRD to develop a state-wide inventory of properties and areas these divisions consider higher risk for law enforcement patrolling and surveillance. They established law enforcement risks based on one or more of the following: acreage, visitation patterns and/or the value of infrastructure and equipment on-site. **Appendices F – H** present maps and tables of these risk profiles by LED region, work unit, county and sites of interest.

LED can adopt these results as a baseline of geographical law enforcement risks (as perceived by partner divisions) or collect additional data to identify and inform warden distribution and assignments.[11]

Exhibit 13 provides an example of risk profiling using the guest visitation volume to Georgia state parks during fiscal years 2017 – 2018. Results show guest volume is highly variable among work units (and by extension regions). If we consider guest volume as a proxy for law enforcement risk, this variation can have significant management ramifications and should be considered by LED when making decisions on warden distribution and assignments to regions, work units, counties, and sites of interest. As the exhibit shows, work unit 2.4 received 2.7 million visitors during the two-year period, substantially more than other areas. Further, the four work units in Region 2 were among the top seven most visited in the state. These type of data patterns should be integrated transparently into LED methods and decision making for warden distribution and assignments. Ideally, the pattern of warden distribution and assignment would periodically be communicated to other DNR divisions with underlying reports on data patterns that inform those assignments.

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[11] It is worth noting that in 2014, LED undertook a one-time effort to collect, analyze, and integrate baseline data from the State Parks & Historic Sites and Wildlife Resources Division to develop a state-wide warden demand model. However, this practice is not recurring, and it is not clear that warden distribution and assignment methods integrate this type of data consistently.

Exhibit 13
Significant Difference in State Park Visitation by LED Work Unit
Fiscal Years 2017 – 2018

Source: DNR State Parks & Historic Sites Division

RECOMMENDATIONS

1. LED should develop methods to periodically obtain relevant visitation, utilization, inventory, and other relevant data from SPHS and WRD.

2. LED should consider the data received when assigning wardens geographically.

3. LED should develop methods for reporting to SPHS and WRD on warden distribution and warden activities on their properties.

Conservation Technology

Finding #5: LED has acquired field cameras to complement monitoring and investigative activities, but management can improve operations by adopting a risk-based strategy to distribute and use them.

The total investment for a camera and lock box is less than $1,000; it can provide up to 8,700 hours of coverage per year.

LED has acquired 76 field cameras with the capacity to stream live video or send images to cell phones to expand warden force capacity to patrol, monitor and investigate simultaneously across multiple locations while offsite or even off-duty.[12] However, LED has not developed a process that strategically directs this limited resource to regions, work units, or personnel based on expected need and appropriateness. LED can improve operations by adopting a risk-based strategy to distribute field cameras. Further, LED should establish standards to guide decisions on when and/or how to employ cameras in the field; it should then set expectations for wardens relative to these standards. We found relevant discrepancies in how, when, and why game wardens used field cameras in practice that suggested the resource is likely underutilized.

Because this type of field camera can notify wardens of activity and provide video, they are a cost-effective piece of equipment that wardens can use to complement patrol, monitoring, and investigative activities. While the cameras require an up-front cost of several hundred dollars, the mounted unit can provide up to 8,700 hours of field coverage a year over multiple years. Cameras are motion sensitive and, when triggered, deliver an image immediately to a warden's assigned cell phone. The warden can make a real-time decision on whether and how to respond (e.g., ignore it, drive to location, or redirect to another warden). **See Exhibit 14** for sample images taken from LED field cameras.
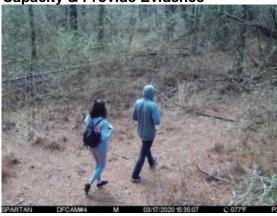
When used consistently and effectively, cameras can expand warden capacity significantly by allowing wardens to constantly monitor multiple areas and collect/share images when off-site (or even off-duty). Cameras provide a tactical advantage in areas where being seen poses a risk to wardens and provide photographic evidence produced can accelerate criminal justice proceedings (by convincing violators to take pleas). Cameras can complement overall surveillance strategy in both proactive and reactive law enforcement activities. For example, wardens may set a camera prior to receiving a complaint to monitor an area or object of interest (e.g., pay box or equipment storage building). Upon receiving a complaint or investigative lead, wardens can use a camera to monitor for ongoing illegal activity.

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[12] In addition to Spartan cameras, LED has additional cameras that can capture footage of surveilled areas but cannot live stream footage. We limited our review to the Spartan cameras because of their live capability and the ability to prompt immediate law enforcement activity.

Exhibit 14
Mounted Field Cameras Expand Monitoring Capacity & Provide Evidence

An identified felon with a firearm trapping out of season.

Identified trespassers on a wildlife management area.

A man operating an ATV unlawfully on a wildlife management area.

A vehicle accessing an unauthorized area.

A hunter at dusk who neglected to wear his safety vest (night-time).

A vehicle damaging a food plot (night-time).

Source: LED

In distributing the cameras, LED has not adopted a risk-based approach using law enforcement activity patterns, nor has it distributed the cameras to mitigate the loss of wardens to cover a specific geographic area (e.g., personnel patrol replacement). Instead, it evenly distributed its seventy-six live streaming cameras among six regions (12 per) and assigned four to the investigative unit.

In addition, LED has not established written standards for when game wardens are expected, or required, to use field cameras to monitor areas and/or collect evidence. Much like planning and executing daily on duty patrols, individual game wardens have full discretion on whether to use field cameras when conducting their duties, regardless of how effective and appropriate the use of field cameras may be.

We interviewed the six regional captains and eighteen field sergeants regarding how, when, and why field cameras are used and found opinions varied greatly. One work unit had developed a method for collecting and managing images as part of a larger system of active complaint management, which was developed by the local manager. Some wardens reported relying heavily on field cameras to assist in monitoring and investigative efforts and expressed a wish for more cameras, while other wardens report rarely (if ever) using field cameras.[13] The discrepancy appears to be caused more by the preference of any individual warden then by an overarching philosophy or standard of practice established by the division or regions.

With better distribution logic and instruction for using field cameras to inform patrol and monitoring, LED can better utilize this technology to add patrol hours in vital places and identify violations that may have gone undetected and undocumented in the past.

RECOMMENDATIONS

1. LED should develop a strategic method for distributing field cameras to regions, work units, or personnel based on expected need and appropriateness.

2. LED should develop standards and expectations for wardens to adopt and meet when using cameras in the field.

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[13] As noted earlier, warden demand cannot be fully established with available data. Therefore, we did not assess whether LED has enough field cameras to reasonably support warden demand. Rather, we focused on how LED distributed the resource and guided its use law enforcement purposes.

Appendices

Appendix A: Table of Recommendations

Finding 1: Game warden location assignments do not align with patterns of law enforcement actions; however, more data is required to completely and accurately identify warden demand. (p. 9)

1. LED should update its historical method for distributing wardens throughout the state by using data that identifies patterns of law enforcement actions and risks, including calls for direct warden services (e.g., complaint calls).

Finding 2: Game warden time assignments do not align with patterns of law enforcement actions; however, more data is required to completely and accurately identify warden demand. (p. 14)

2. In addition to improving data collection, LED should consider whether to adjust either the master scheduling protocols or the methods of daily work hour assignments/permissions to better ensure that work hours align with times of highest law enforcement risk.

Finding 3: LED can improve reporting capabilities to track activity and productivity for regions, work units, and wardens. (p. 17)

3. LED should improve methods of data collection to ensure that records of warden work activities are complete, accurate, and retrievable.

4. Data collection should be reportable by time and geography.

5. Data should be used by management to monitor/measure warden and work unit productivity to inform warden distribution, assignments, scheduling, and patrol planning.

Finding 4: LED should better coordinate and integrate information into its planning to ensure it is meeting DNR's law enforcement needs. (p. 20)

6. LED should develop methods to periodically obtain relevant visitation, utilization, inventory, and other relevant data from SPHS and WRD.

7. LED should consider the data received when assigning wardens geographically.

8. LED should develop methods for reporting to SPHS and WRD on warden distribution and warden activities on their properties.

Finding 5: LED has acquired field cameras to complement monitoring and investigative activities, but management can improve operations by adopting a risk-based strategy to distribute and use them. (p. 24)

9. LED should develop a strategic method for distributing field cameras to regions, work units, or personnel based on expected need and appropriateness.

10. LED should develop standards and expectations for wardens to adopt and meet when using cameras in the field.

Appendix B: Objectives, Scope, and Methodology

Objectives

This audit examines the field operations unit of the Department of Natural Resources Law Enforcement Division (LED). Specifically, our audit was designed to determine whether LED has:

- distributed and assigned its sworn officer work force appropriately?
- coordinated effectively with other partners for law enforcement services?
- adopted cost-effective technology to improve conservation law enforcement?

Scope

This audit generally covered activity related to the field operations unit of the Department of Natural Resources Law Enforcement Division (LED) that occurred during state fiscal years 2017 and 2018, with consideration of earlier or later periods when relevant. Information used in this report was obtained by: reviewing relevant laws, rules, and regulations, reviewing financial and activity data/reports, interviewing agency officials and staff from LED, the State Parks & Historic Sites, and Wildlife Resources Divisions, law enforcement units in other states and federal agencies, analyzing data and reports from the major systems used by LED to track law enforcement actions, time tracking, and activity/performance reporting. We conducted necessary tests to ensure data were sufficiently reliable to satisfy audit objectives. We incurred one significant scope impairment related to the hacking of a primary LED data system during the audit. This scope impairment, however, was not permanent though it did require some accommodations in methodology. (See statement below in methodology.)

Government auditing standards require that we also report the scope of our work on internal control that is significant within the context of the audit objectives. Methods to establish internal control include plans, policies, methods, and procedures adopted by management to meet its mission, goals, and objectives. In addition, the processes for planning, organizing, directing, and controlling program operations and the systems for measuring, reporting, and monitoring program performance are part of a system of internal control. Specific information related to the scope of our internal control work is described by objective in the methodology section below.

Methodology

To determine whether LED distributed and assigned its sworn officer work force appropriately, we interviewed LED staff at headquarters, regional captains, and field operations personnel. We visited or interviewed personnel from all regions. We collected prior studies conducted by LED on staff demand, organization and staffing charts, and all major policies and procedures for the division. We collected data from two major sources: the divisions' bi-monthly activity reports (BMARs) and the Records Management System (RMS). BMARs were mostly unavailable for data extraction, so we collected detailed records for regional units that retained data electronically (3 of 7) and applied/analyzed results as possible. With respect to RMS data, our effort to query records directly from the system was compromised due to a ransomware attack. Because of the attack, the audit team lost access to the system for several months. In the absence of direct access, the audit team collected the primary custom reports from the system maintained by the chief IT staff member at LED. We

conducted necessary data reliability tests and consider the records a sufficient replacement for the purpose for which the data were used. We compiled and coded data by season according to conversations with LED staff.

With respect to this objective, the scope of work related to the design and operating effectiveness of LED's system of internal control include: a review of methods to distribute and assign warden personnel, including organizational charts, policies, prior analyses, and data from major activity and performance systems, BMAR and RMS. Our analytical work evaluated aspects of the control environment, information systems, and monitoring. These components are largely discussed in findings 1, 2, and 3.

To determine whether LED coordinated effectively with other partners for law enforcement services, we interviewed LED staff at headquarters, regional captains, and field operations personnel. We analyzed current policies and procedures related to field operation planning and reporting. We interviewed personnel from the DNR Division of State Parks and Historical Sites and the Wildlife Resources Division and collected baseline data of their operations related to law enforcement risk.

With respect to this objective, the scope of work related to the design and operating effectiveness of LED's system of internal control include: consideration of current strategic planning, coordination, and reporting with partner divisions. As such, our analytical work evaluated aspects of the control environment, information systems, and monitoring. These components are largely discussed in finding 4.
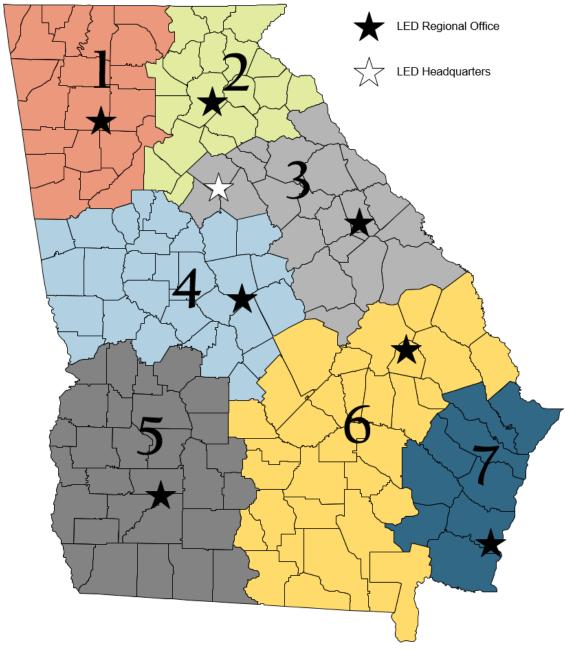
To determine the extent to which adopted cost-effective technology to improve conservation law enforcement, we reviewed the law enforcement technology on the market and compared available features and functions. To establish data on LED field camera inventory, methods for distributing and assigning the technology, and methods for using them in field operations, we interviewed LED staff at headquarters, regional captains, and field sergeants. To establish baseline industry practices, we interviewed officials from conservation law enforcement units in other states and federal agencies.

With respect to this objective, the scope of work related to the design and operating effectiveness of LED's system of internal control include: consideration of methods for inventorying and distributing physical resources, specifically field cameras. Our analytical work evaluated aspects of the control environment, information systems, and monitoring. These components are largely discussed in finding 5.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix C: LED Regional Organization (Prior to Jan 1, 2020)

Below are the LED regional boundaries that existed prior to a realignment that took place on January 1, 2020 when LED reduced regional offices from seven to six. The alignment below was in place during the period we reviewed for this audit, and the results presented in the audit findings reflect this organizational alignment. Recommendations from the findings can be applied to the new regional alignment.
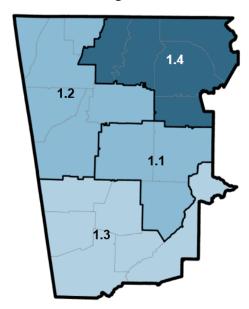
Source: LED
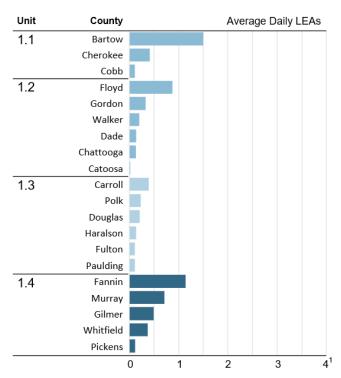
Appendix D: Law Enforcement Actions, Daily Averages

Average Daily Law Enforcement Actions
by Work Unit, FY17&18
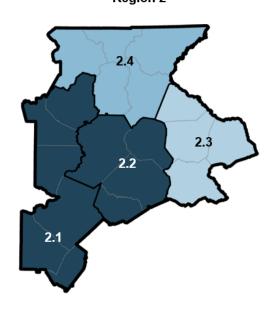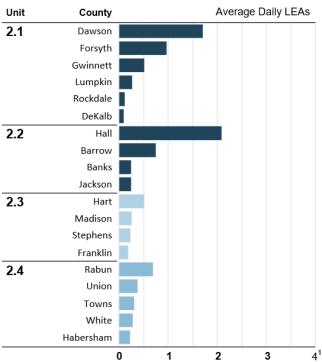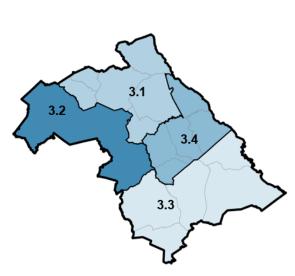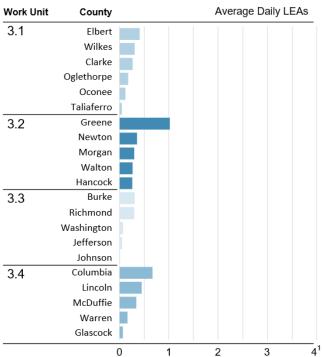
Region 1

Unit	County	Average Daily LEAs
1.1	Bartow	
	Cherokee	
	Cobb	
1.2	Floyd	
	Gordon	
	Walker	
	Dade	
	Chattooga	
	Catoosa	
1.3	Carroll	
	Polk	
	Douglas	
	Haralson	
	Fulton	
	Paulding	
1.4	Fannin	
	Murray	
	Gilmer	
	Whitfield	
	Pickens	

Region 2

Unit	County	Average Daily LEAs
2.1	Dawson	
	Forsyth	
	Gwinnett	
	Lumpkin	
	Rockdale	
	DeKalb	
2.2	Hall	
	Barrow	
	Banks	
	Jackson	
2.3	Hart	
	Madison	
	Stephens	
	Franklin	
2.4	Rabun	
	Union	
	Towns	
	White	
	Habersham	

<2   <4

[1] Scale represents the total daily LEAs for each work unit.
Total daily LEAs are broken out by county.

Average Daily Law Enforcement Actions
by Work Unit, FY17&18

Region 3

Work Unit	County	Average Daily LEAs
3.1	Elbert	
	Wilkes	
	Clarke	
	Oglethorpe	
	Oconee	
	Taliaferro	
3.2	Greene	
	Newton	
	Morgan	
	Walton	
	Hancock	
3.3	Burke	
	Richmond	
	Washington	
	Jefferson	
	Johnson	
3.4	Columbia	
	Lincoln	
	McDuffie	
	Warren	
	Glascock	

0   1   2   3   4[1]

Region 4

Work Unit	County	Average Daily LEAs
4.1	Harris	
	Muscogee	
	Bibb	
	Talbot	
	Taylor	
	Crawford	
	Peach	
4.2	Troup	
	Meriwether	
	Pike	
	Heard	
	Henry	
	Fayette	
	Coweta	
	Spalding	
	Clayton	
4.3	Jasper	
	Monroe	
	Butts	
	Lamar	
	Upson	
4.4	Putnam	
	Baldwin	
	Houston	
	Jones	
	Twiggs	
	Wilkinson	
	Bleckley	
	Pulaski	

0   1   2   3   4[1]

[1] Scale represents the total daily LEAs for each work unit. Total daily LEAs are broken out by county.

<2   <4

Average Daily Law Enforcement Actions
by Work Unit, FY17&18

Region 5

Work Unit	County	Average Daily LEAs
5.1	Dougherty	
	Colquitt	
	Brooks	
	Thomas	
	Worth	
	Tift	
5.2	Stewart	
	Clay	
	Randolph	
	Calhoun	
	Quitman	
	Terrell	
	Webster	
	Chattahoochee	
5.3	Decatur	
	Early	
	Baker	
	Seminole	
	Grady	
	Mitchell	
	Miller	
5.4	Crisp	
	Lee	
	Sumter	
	Macon	
	Turner	
	Dooly	
	Marion	
	Schley	

Scale: 0   1   2   3   4[1]

Region 6

Work Unit	County	Average Daily LEAs
6.1	Bulloch	
	Effingham	
	Screven	
	Emanuel	
	Jenkins	
	Candler	
6.2	Ware	
	Clinch	
	Charlton	
	Echols	
	Pierce	
	Bacon	
6.3	Appling	
	Jeff Davis	
	Toombs	
	Montgomery	
	Tattnall	
	Evans	
	Treutlen	
6.4	Berrien	
	Cook	
	Lowndes	
	Coffee	
	Atkinson	
	Lanier	
6.5	Laurens	
	Dodge	
	Wheeler	
	Irwin	
	Wilcox	
	Telfair	
	Ben Hill	

Scale: 0   1   2   3   4[1]

[1] Scale represents the total daily LEAs for each work unit. Total daily LEAs are broken out by county.

<2   <4

Average Daily Law Enforcement Actions
by Work Unit, FY17&18

Region 7

Unit	County	Average Daily LEAs
7.1	Glynn	
	Camden	
	Brantley	
7.2	Chatham	
7.3	Bryan	
	Liberty	
7.4	Wayne	
	McIntosh	
	Long	

Average Daily LEAs

<2   <4

[1] Scale represents the total daily LEAs for each work unit.
Total daily LEAs are broken out by county.

Appendix E: Law Enforcement Actions Per Day, Season and Days of Week
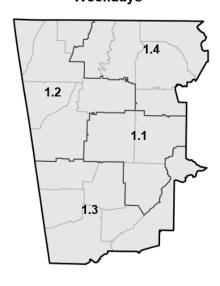
Region 1 Daily Law Enforcement Actions, Fishing/Turkey Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
1.1	Bartow	
	Cherokee	
	Cobb	
1.2	Floyd	
	Walker	
	Gordon	
	Chattooga	
	Catoosa	
	Dade	
1.3	Carroll	
	Douglas	
	Paulding	
	Haralson	
	Polk	
	Fulton	
1.4	Fannin	
	Gilmer	
	Murray	
	Whitfield	
	Pickens	

0 2 4 6 8 10 12[2]

Weekdays

Work Unit	County	Average Daily LEAs
1.1	Bartow	
	Cherokee	
	Cobb	
1.2	Floyd	
	Gordon	
	Walker	
	Chattooga	
	Catoosa	
	Dade	
1.3	Carroll	
	Polk	
	Douglas	
	Fulton	
	Paulding	
	Haralson	
1.4	Fannin	
	Gilmer	
	Murray	
	Whitfield	
	Pickens	

0 2 4 6 8 10 12[2]

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

<2   <13

Region 1 Daily Law Enforcement Actions, Boating Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
1.1	Bartow	
	Cherokee	
	Cobb	
1.2	Floyd	
	Gordon	
	Walker	
	Chattooga	
	Catoosa	
	Dade	
1.3	Carroll	
	Fulton	
	Douglas	
	Haralson	
	Polk	
	Paulding	
1.4	Fannin	
	Murray	
	Gilmer	
	Whitfield	
	Pickens	

0   2   4   6   8   10   12[2]

Weekdays

Work Unit	County	Average Daily LEAs
1.1	Bartow	
	Cherokee	
	Cobb	
1.2	Floyd	
	Walker	
	Gordon	
	Dade	
	Chattooga	
	Catoosa	
1.3	Carroll	
	Douglas	
	Fulton	
	Polk	
	Haralson	
	Paulding	
1.4	Fannin	
	Murray	
	Whitfield	
	Gilmer	
	Pickens	

0   2   4   6   8   10   12[2]

<2   <13

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

Region 1 Daily Law Enforcement Actions, Deer Season
by Work Unit, FY17&18

Weekends[1]
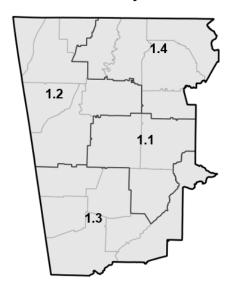
Unit	County	Average Daily LEAs
1.1	Bartow	
	Cherokee	
	Cobb	
1.2	Floyd	
	Gordon	
	Dade	
	Chattooga	
	Walker	
	Catoosa	
1.3	Polk	
	Haralson	
	Carroll	
	Paulding	
	Douglas	
	Fulton	
1.4	Murray	
	Fannin	
	Whitfield	
	Pickens	
	Gilmer	

0   2   4   6   8   10   12[2]
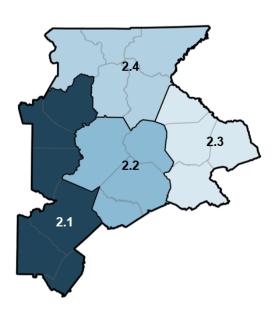
Weekdays

Unit	County	Average Daily LEAs
1.1	Bartow	
	Cherokee	
	Cobb	
1.2	Floyd	
	Gordon	
	Dade	
	Chattooga	
	Walker	
	Catoosa	
1.3	Polk	
	Carroll	
	Paulding	
	Douglas	
	Haralson	
	Fulton	
1.4	Murray	
	Fannin	
	Gilmer	
	Whitfield	
	Pickens	

0   2   4   6   8   10   12[2]

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

<2   <13

Region 2 Daily Law Enforcement Actions, Fishing/Turkey Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
2.1	Dawson	
	Forsyth	
	Gwinnett	
	Lumpkin	
	Rockdale	
	DeKalb	
2.2	Hall	
	Barrow	
	Banks	
	Jackson	
2.3	Madison	
	Hart	
	Stephens	
	Franklin	
2.4	Rabun	
	White	
	Union	
	Habersham	
	Towns	

0   2   4   6   8   10   12[2]

Weekdays

Work Unit	County	Average Daily LEAs
2.1	Dawson	
	Forsyth	
	Gwinnett	
	Lumpkin	
	Rockdale	
	DeKalb	
2.2	Hall	
	Barrow	
	Banks	
	Jackson	
2.3	Hart	
	Stephens	
	Madison	
	Franklin	
2.4	Rabun	
	Union	
	Habersham	
	White	
	Towns	

0   2   4   6   8   10   12[2]

<2   <13

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

Region 2 Daily Law Enforcement Actions, Boating Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
2.1	Forsyth	
	Dawson	
	Gwinnett	
	Lumpkin	
	Rockdale	
	DeKalb	
2.2	Hall	
	Barrow	
	Jackson	
	Banks	
2.3	Hart	
	Franklin	
	Stephens	
	Madison	
2.4	Rabun	
	Towns	
	Union	
	Habersham	
	White	

0   2   4   6   8   10   12[2]

Weekdays

Work Unit	County	Average Daily LEAs
2.1	Dawson	
	Forsyth	
	Lumpkin	
	Gwinnett	
	DeKalb	
	Rockdale	
2.2	Hall	
	Barrow	
	Jackson	
	Banks	
2.3	Hart	
	Franklin	
	Madison	
	Stephens	
2.4	Rabun	
	Union	
	White	
	Towns	
	Habersham	

0   2   4   6   8   10   12[2]

[1] Weekends = Saturday & Sunday

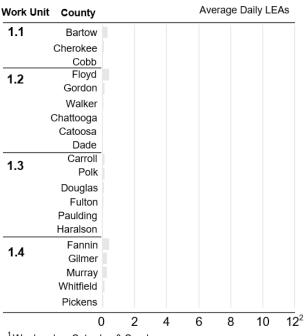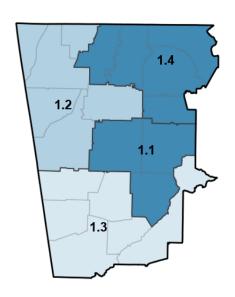[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

<2   <13

Region 2 Daily Law Enforcement Actions, Deer Season
by Work Unit, FY17&18

Weekends[1]
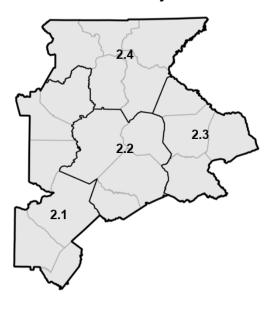
Work Unit	County	Average Daily LEAs
2.1	Dawson	
	Gwinnett	
	Forsyth	
	Lumpkin	
	DeKalb	
	Rockdale	
2.2	Barrow	
	Banks	
	Jackson	
	Hall	
2.3	Madison	
	Stephens	
	Hart	
	Franlkin	
2.4	Habersham	
	White	
	Union	
	Rabun	
	Towns	

0   2   4   6   8   10   12[2]

Weekdays

Work Unit	County	Average Daily LEAs
2.1	Dawson	
	Gwinnett	
	Forsyth	
	DeKalb	
	Lumpkin	
	Rockdale	
2.2	Hall	
	Barrow	
	Jackson	
	Banks	
2.3	Hart	
	Madison	
	Stephens	
	Franklin	
2.4	Union	
	White	
	Habersham	
	Rabun	
	Towns	

0   2   4   6   8   10   12[2]

<2   <13

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

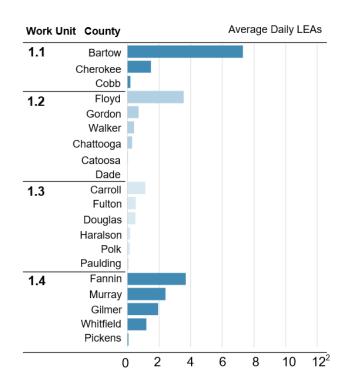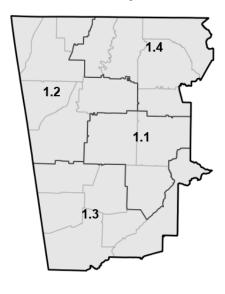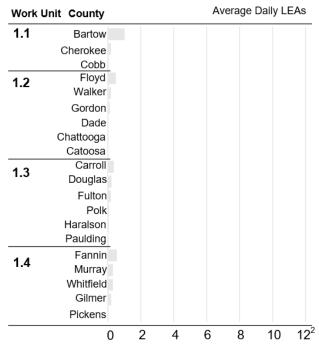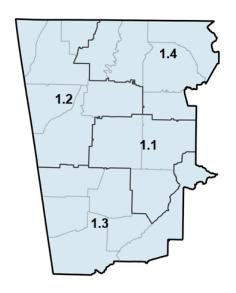# Region 3 Daily Law Enforcement Actions, Fishing/Turkey Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
3.1	Elbert	
	Clarke	
	Wilkes	
	Oglethorpe	
	Oconee	
	Taliaferro	
3.2	Greene	
	Newton	
	Morgan	
	Hancock	
	Walton	
3.3	Richmond	
	Burke	
	Washington	
	Johnson	
	Jefferson	
3.4	Columbia	
	McDuffie	
	Lincoln	
	Warren	
	Glascock	

0 2 4 6 8 10 12[2]

Weekdays

Work Unit	County	Average Daily LEAs
3.1	Clarke	
	Elbert	
	Wilkes	
	Oglethorpe	
	Oconee	
	Taliaferro	
3.2	Greene	
	Newton	
	Hancock	
	Morgan	
	Walton	
3.3	Richmond	
	Burke	
	Johnson	
	Washington	
	Jefferson	
3.4	Columbia	
	McDuffie	
	Warren	
	Glascock	
	Lincoln	

0 2 4 6 8 10 12[2]

<2   <13

[1] Weekends = Saturday & Sunday
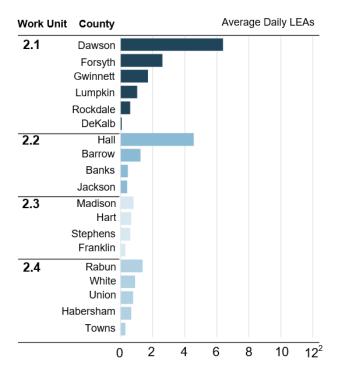
[2] Scale represents the largest work unit LEAs for each season.
Totals are broken out by county.

Region 3 Daily Law Enforcement Actions, Boating Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
3.1	Elbert	
	Clarke	
	Oconee	
	Oglethorpe	
	Wilkes	
	Taliaferro	
3.2	Greene	
	Morgan	
	Walton	
	Newton	
	Hancock	
3.3	Richmond	
	Burke	
	Washington	
	Jefferson	
	Johnson	
3.4	Columbia	
	Lincoln	
	McDuffie	
	Warren	
	Glascock	

0   2   4   6   8   10   12[2]

Weekdays

Work Unit	County	Average Daily LEAs
3.1	Elbert	
	Clarke	
	Oglethorpe	
	Wilkes	
	Oconee	
	Taliaferro	
3.2	Greene	
	Morgan	
	Newton	
	Hancock	
	Walton	
3.3	Richmond	
	Burke	
	Jefferson	
	Johnson	
	Washington	
3.4	Columbia	
	Lincoln	
	McDuffie	
	Warren	
	Glascock	

0   2   4   6   8   10   12[2]

<2   <13

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

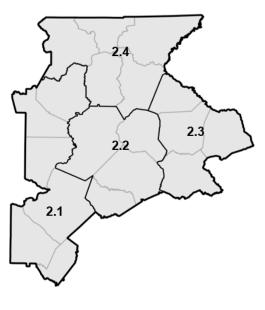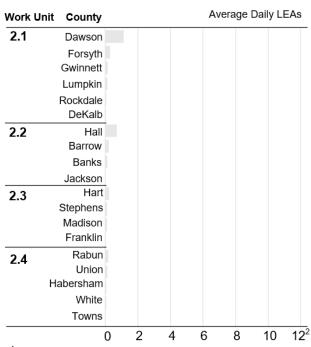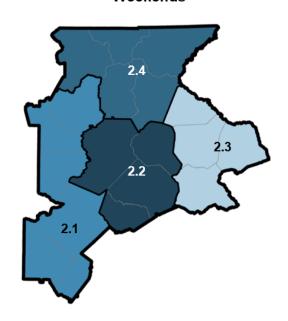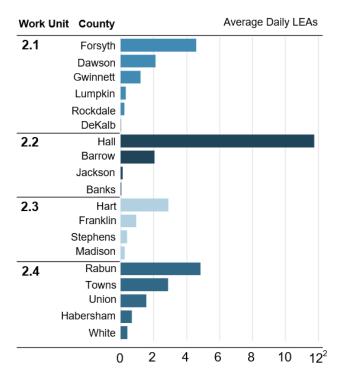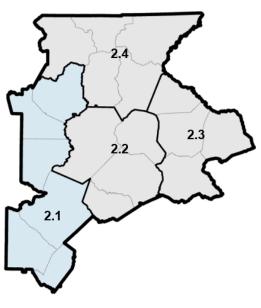# Region 3 Daily Law Enforcement Actions, Deer Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
3.1	Wilkes	
	Oglethorpe	
	Oconee	
	Elbert	
	Taliaferro	
	Clarke	
3.2	Greene	
	Hancock	
	Morgan	
	Newton	
	Walton	
3.3	Burke	
	Richmond	
	Washington	
	Jefferson	
	Johnson	
3.4	Lincoln	
	Warren	
	Glascock	
	McDuffie	
	Columbia	

0 2 4 6 8 10 12[2]

Weekdays

Work Unit	County	Average Daily LEAs
3.1	Elbert	
	Wilkes	
	Clarke	
	Oconee	
	Oglethorpe	
	Taliaferro	
3.2	Greene	
	Newton	
	Walton	
	Morgan	
	Hancock	
3.3	Burke	
	Richmond	
	Washington	
	Jefferson	
	Johnson	
3.4	McDuffie	
	Warren	
	Lincoln	
	Columbia	
	Glascock	

0 2 4 6 8 10 12[2]

<2   <13

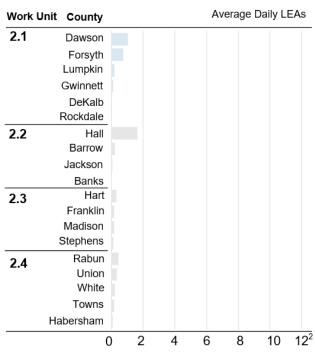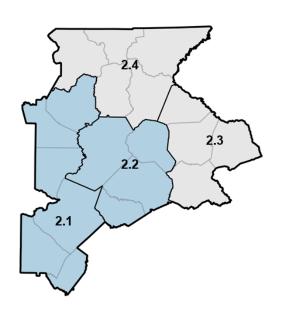[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

# Region 4 Daily Law Enforcement Actions, Fishing/Turkey Season
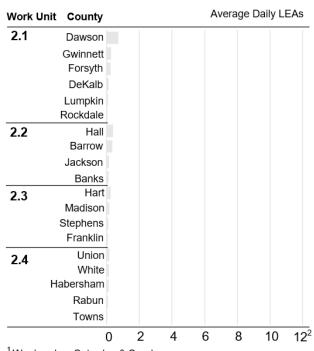by Work Unit, FY17&18

Weekends[1]

Unit	County	Average Daily LEAs
4.1	Muscogee	
	Harris	
	Talbot	
	Bibb	
	Crawford	
	Peach	
	Taylor	
4.2	Troup	
	Pike	
	Heard	
	Fayette	
	Henry	
	Meriwether	
	Coweta	
	Clayton	
	Spalding	
4.3	Jasper	
	Monroe	
	Butts	
	Lamar	
	Upson	
4.4	Putnam	
	Baldwin	
	Jones	
	Houston	
	Twiggs	
	Wilkinson	
	Pulaski	
	Bleckley	

0   2   4   6   8   10   12[2]

Weekdays

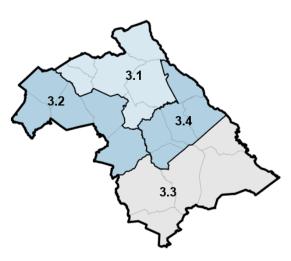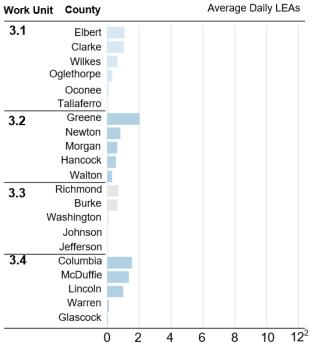| Unit	County	Average Daily LEAs
4.1	Muscogee	
	Bibb	
	Crawford	
	Talbot	
	Taylor	
	Harris	
	Peach	
4.2	Troup	
	Meriwether	
	Henry	
	Heard	
	Spalding	
	Fayette	
	Clayton	
	Coweta	
	Pike	
4.3	Butts	
	Jasper	
	Monroe	
	Lamar	
	Upson	
4.4	Putnam	
	Baldwin	
	Twiggs	
	Wilkinson	
	Jones	
	Bleckley	
	Houston	
	Pulaski	

0   2   4   6   8   10   12[2]

[1] Weekends = Saturday & Sunday

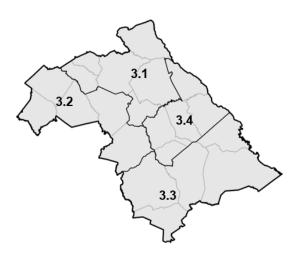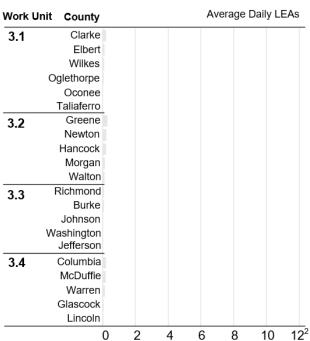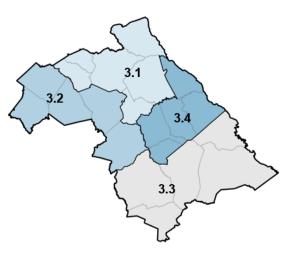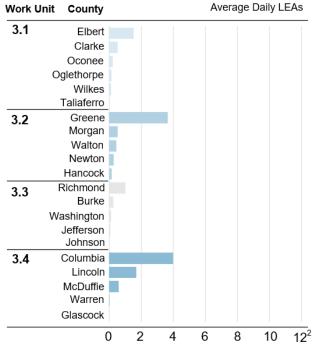[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

<2   <13

Region 4 Daily Law Enforcement Actions, Boating Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
4.1	Harris	
	Bibb	
	Muscogee	
	Talbot	
	Taylor	
	Crawford	
	Peach	
4.2	Troup	
	Meriwether	
	Pike	
	Heard	
	Henry	
	Coweta	
	Fayette	
	Clayton	
	Spalding	
4.3	Jasper	
	Butts	
	Monroe	
	Upson	
	Lamar	
4.4	Putnam	
	Baldwin	
	Houston	
	Twiggs	
	Jones	
	Pulaski	
	Bleckley	
	Wilkinson	

0   2   4   6   8   10   12[2]

Weekdays

Work Unit	County	Average Daily LEAs
4.1	Bibb	
	Muscogee	
	Harris	
	Crawford	
	Talbot	
	Peach	
	Taylor	
4.2	Troup	
	Meriwether	
	Pike	
	Coweta	
	Fayette	
	Heard	
	Henry	
	Spalding	
	Clayton	
4.3	Jasper	
	Monroe	
	Butts	
	Lamar	
	Upson	
4.4	Putnam	
	Baldwin	
	Houston	
	Twiggs	
	Jones	
	Wilkinson	
	Bleckley	
	Pulaski	

0   2   4   6   8   10   12[2]

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.
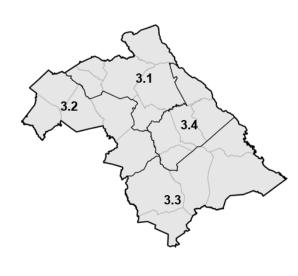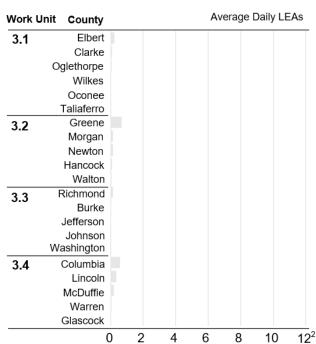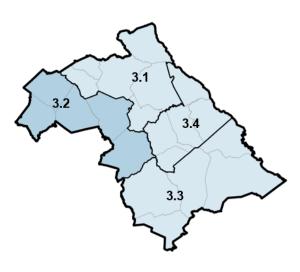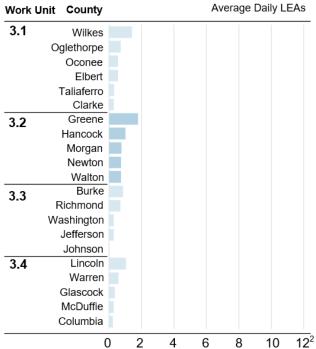
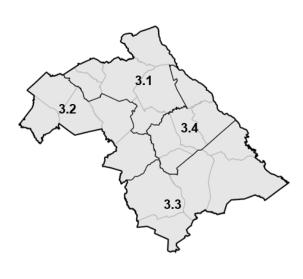<2   <13

Region 4 Daily Law Enforcement Actions, Deer Season
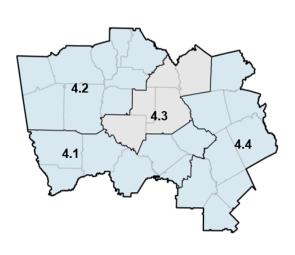by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
4.1	Talbot	
	Taylor	
	Harris	
	Crawford	
	Bibb	
	Muscogee	
	Peach	
4.2	Meriwether	
	Troup	
	Heard	
	Fayette	
	Coweta	
	Pike	
	Spalding	
	Henry	
	Clayton	
4.3	Jasper	
	Monroe	
	Butts	
	Lamar	
	Upson	
4.4	Putnam	
	Houston	
	Baldwin	
	Jones	
	Wilkinson	
	Pulaski	
	Twiggs	
	Bleckley	

0   2   4   6   8   10   12[2]

Weekdays
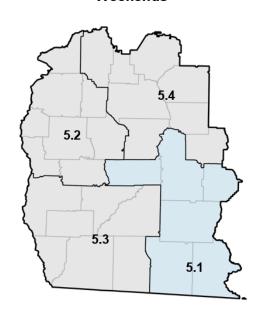
Work Unit	County	Average Daily LEAs
4.1	Harris	
	Talbot	
	Taylor	
	Crawford	
	Peach	
	Bibb	
	Muscogee	
4.2	Troup	
	Spalding	
	Henry	
	Meriwether	
	Fayette	
	Coweta	
	Pike	
	Heard	
	Clayton	
4.3	Monroe	
	Jasper	
	Lamar	
	Upson	
	Butts	
4.4	Putnam	
	Baldwin	
	Wilkinson	
	Jones	
	Houston	
	Twiggs	
	Bleckley	
	Pulaski	

0   2   4   6   8   10   12[2]

<2   <13

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

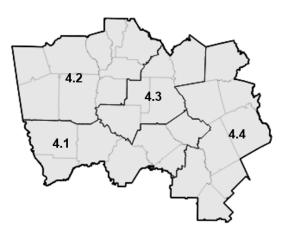# Region 5 Daily Law Enforcement Actions, Fishing/Turkey Season
by Work Unit, FY17&18

Weekends[1]
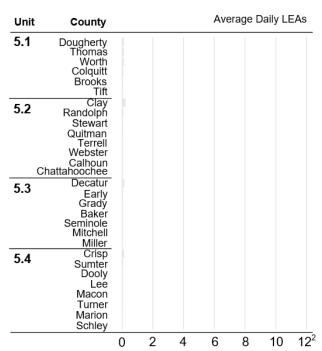
Unit	County	Average Daily LEAs
5.1	Dougherty	
	Brooks	
	Colquitt	
	Thomas	
	Worth	
	Tift	
5.2	Stewart	
	Clay	
	Quitman	
	Randolph	
	Chattahoochee	
	Terrell	
	Webster	
	Calhoun	
5.3	Decatur	
	Mitchell	
	Seminole	
	Grady	
	Early	
	Baker	
	Miller	
5.4	Crisp	
	Lee	
	Schley	
	Sumter	
	Dooly	
	Marion	
	Macon	
	Turner	

0   2   4   6   8   10   12[2]

Weekdays

Unit	County	Average Daily LEAs
5.1	Dougherty	
	Thomas	
	Worth	
	Colquitt	
	Brooks	
	Tift	
5.2	Clay	
	Randolph	
	Stewart	
	Quitman	
	Terrell	
	Webster	
	Calhoun	
	Chattahoochee	
5.3	Decatur	
	Early	
	Grady	
	Baker	
	Seminole	
	Mitchell	
	Miller	
5.4	Crisp	
	Sumter	
	Dooly	
	Lee	
	Macon	
	Turner	
	Marion	
	Schley	

0   2   4   6   8   10   12[2]

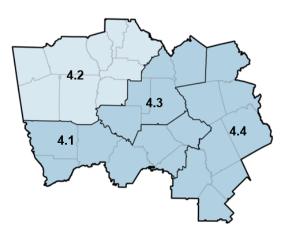<2   <13
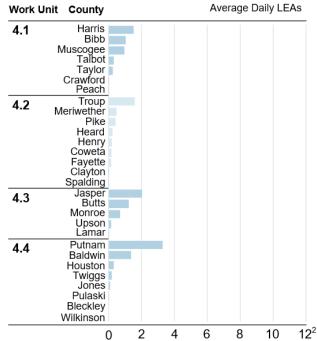
[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

Region 5 Daily Law Enforcement Actions, Boating Season
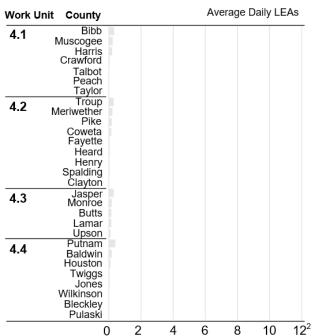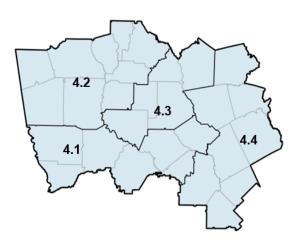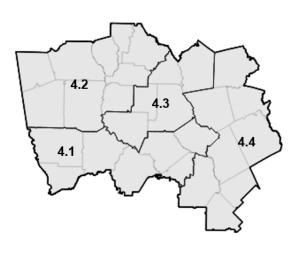by Work Unit, FY17&18

Weekends[1]
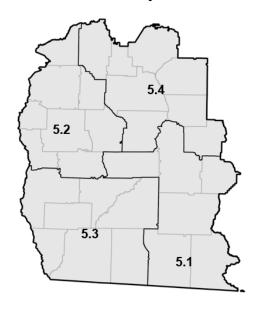
Work Unit	County	Average Daily LEAs
5.1	Dougherty	
	Colquitt	
	Brooks	
	Worth	
	Tift	
	Thomas	
5.2	Clay	
	Stewart	
	Quitman	
	Chattahoochee	
	Randolph	
	Calhoun	
	Terrell	
	Webster	
5.3	Decatur	
	Early	
	Grady	
	Seminole	
	Mitchell	
	Baker	
	Miller	
5.4	Crisp	
	Lee	
	Sumter	
	Dooly	
	Macon	
	Marion	
	Schley	
	Turner	

0 2 4 6 8 10 12[2]

Weekdays
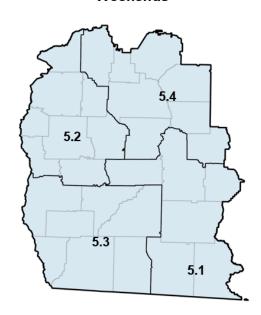
Work Unit	County	Average Daily LEAs
5.1	Dougherty	
	Colquitt	
	Worth	
	Brooks	
	Thomas	
	Tift	
5.2	Clay	
	Calhoun	
	Quitman	
	Stewart	
	Chattahoochee	
	Randolph	
	Terrell	
	Webster	
5.3	Decatur	
	Early	
	Baker	
	Seminole	
	Grady	
	Miller	
	Mitchell	
5.4	Crisp	
	Sumter	
	Dooly	
	Lee	
	Macon	
	Turner	
	Marion	
	Schley	

0 2 4 6 8 10 12[2]

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season.
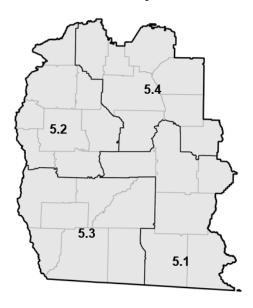Totals are broken out by county.

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Region 5 Daily Law Enforcement Actions, Deer Season
by Work Unit, FY17&18

Weekends[1]
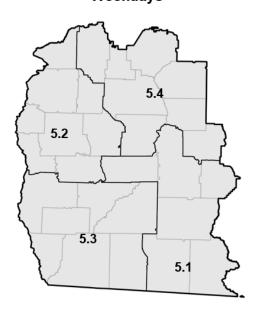
Work Unit	County	Average Daily LEAs
5.1	Colquitt	
	Brooks	
	Worth	
	Tift	
	Thomas	
	Dougherty	
5.2	Stewart	
	Calhoun	
	Clay	
	Randolph	
	Quitman	
	Terrell	
	Webster	
	Chattahoochee	
5.3	Decatur	
	Early	
	Seminole	
	Baker	
	Mitchell	
	Grady	
	Miller	
5.4	Crisp	
	Lee	
	Turner	
	Dooly	
	Macon	
	Marion	
	Sumter	
	Schley	

0   2   4   6   8   10   12[2]

Weekdays
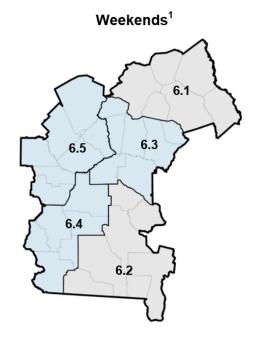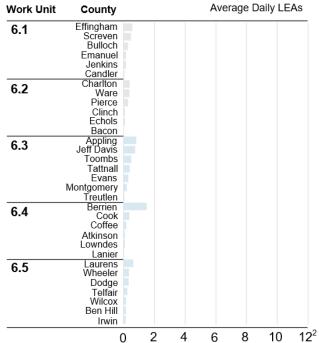
Work Unit	County	Average Daily LEAs
5.1	Thomas	
	Colquitt	
	Worth	
	Dougherty	
	Brooks	
	Tift	
5.2	Stewart	
	Randolph	
	Clay	
	Webster	
	Quitman	
	Calhoun	
	Terrell	
	Chattahoochee	
5.3	Early	
	Decatur	
	Baker	
	Seminole	
	Grady	
	Mitchell	
	Miller	
5.4	Macon	
	Lee	
	Sumter	
	Turner	
	Crisp	
	Marion	
	Schley	
	Dooly	

0   2   4   6   8   10   12[2]

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

<2   <13

Region 6 Daily Law Enforcement Actions, Fishing/Turkey Season
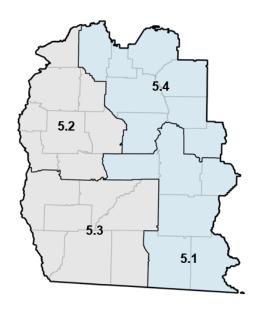by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
6.1	Effingham	
	Screven	
	Bulloch	
	Emanuel	
	Jenkins	
	Candler	
6.2	Charlton	
	Ware	
	Pierce	
	Clinch	
	Echols	
	Bacon	
6.3	Appling	
	Jeff Davis	
	Toombs	
	Tattnall	
	Evans	
	Montgomery	
	Treutlen	
6.4	Berrien	
	Cook	
	Coffee	
	Atkinson	
	Lowndes	
	Lanier	
6.5	Laurens	
	Wheeler	
	Dodge	
	Telfair	
	Wilcox	
	Ben Hill	
	Irwin	

0   2   4   6   8   10   12[2]

Weekdays

Work Unit	County	Average Daily LEAs
6.1	Screven	
	Jenkins	
	Candler	
	Effingham	
	Bulloch	
	Emanuel	
6.2	Ware	
	Bacon	
	Echols	
	Pierce	
	Charlton	
	Clinch	
6.3	Appling	
	Evans	
	Jeff Davis	
	Toombs	
	Treutlen	
	Montgomery	
	Tattnall	
6.4	Berrien	
	Lowndes	
	Cook	
	Atkinson	
	Lanier	
	Coffee	
6.5	Dodge	
	Laurens	
	Wheeler	
	Telfair	
	Irwin	
	Ben Hill	
	Wilcox	

0   2   4   6   8   10   12[2]

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

<2   <13

Region 6 Daily Law Enforcement Actions, Boating Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
6.1	Screven	
	Bulloch	
	Effingham	
	Emanuel	
	Candler	
	Jenkins	
6.2	Clinch	
	Ware	
	Pierce	
	Charlton	
	Bacon	
	Echols	
6.3	Jeff Davis	
	Appling	
	Montgomery	
	Toombs	
	Tattnall	
	Treutlen	
	Evans	
6.4	Berrien	
	Coffee	
	Cook	
	Atkinson	
	Lowndes	
	Lanier	
6.5	Laurens	
	Wheeler	
	Wilcox	
	Irwin	
	Dodge	
	Telfair	
	Ben Hill	

0   2   4   6   8   10   12[2]

Weekdays
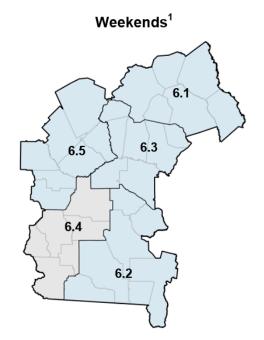
Work Unit	County	Average Daily LEAs
6.1	Bulloch	
	Effingham	
	Screven	
	Jenkins	
	Emanuel	
	Candler	
6.2	Ware	
	Clinch	
	Charlton	
	Echols	
	Bacon	
	Pierce	
6.3	Jeff Davis	
	Appling	
	Evans	
	Toombs	
	Montgomery	
	Tattnall	
	Treutlen	
6.4	Berrien	
	Coffee	
	Cook	
	Lowndes	
	Lanier	
	Atkinson	
6.5	Laurens	
	Dodge	
	Irwin	
	Wheeler	
	Ben Hill	
	Telfair	
	Wilcox	

0   2   4   6   8   10   12[2]
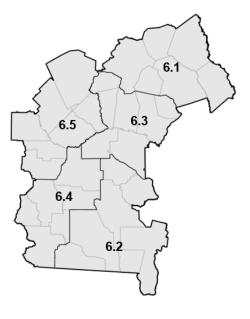
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[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

Region 6 Daily Law Enforcement Actions, Deer Season
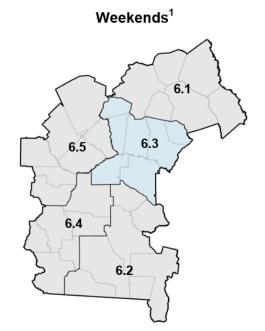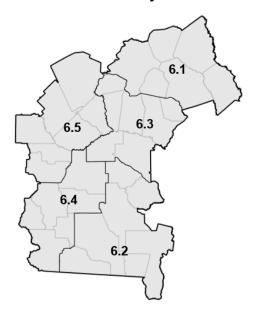by Work Unit, FY17&18

Weekends[1]
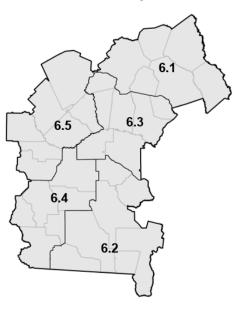
Work Unit	County	Average Daily LEAs
6.1	Effingham	
	Bulloch	
	Screven	
	Jenkins	
	Emanuel	
	Candler	
6.2	Clinch	
	Ware	
	Echols	
	Charlton	
	Pierce	
	Bacon	
6.3	Toombs	
	Jeff Davis	
	Montgomery	
	Appling	
	Tattnall	
	Treutlen	
	Evans	
6.4	Berrien	
	Lowndes	
	Coffee	
	Cook	
	Atkinson	
	Lanier	
6.5	Wheeler	
	Dodge	
	Irwin	
	Laurens	
	Wilcox	
	Ben Hill	
	Telfair	

0   2   4   6   8   10   12[2]

Weekdays
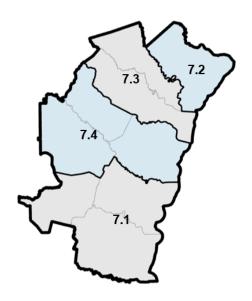
Work Unit	County	Average Daily LEAs
6.1	Bulloch	
	Effingham	
	Emanuel	
	Screven	
	Candler	
	Jenkins	
6.2	Echols	
	Clinch	
	Ware	
	Pierce	
	Charlton	
	Bacon	
6.3	Toombs	
	Appling	
	Montgomery	
	Tattnall	
	Evans	
	Jeff Davis	
	Treutlen	
6.4	Berrien	
	Cook	
	Lowndes	
	Atkinson	
	Lanier	
	Coffee	
6.5	Laurens	
	Dodge	
	Wheeler	
	Irwin	
	Telfair	
	Wilcox	
	Ben Hill	

0   2   4   6   8   10   12[2]

<2   <13

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

Region 7 Daily Law Enforcement Actions, Fishing/Turkey Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
7.1	Glynn	
	Camden	
	Brantley	
7.2	Chatham	
7.3	Bryan	
	Liberty	
7.4	Wayne	
	McIntosh	
	Long	

0   2   4   6   8   10   12[2]

Weekdays

Work Unit	County	Average Daily LEAs
7.1	Glynn	
	Camden	
	Brantley	
7.2	Chatham	
7.3	Bryan	
	Liberty	
7.4	Long	
	Wayne	
	McIntosh	

0   2   4   6   8   10   12[2]

<2   <13

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season.
Totals are broken out by county.

# Region 7 Daily Law Enforcement Actions, Boating Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
7.1	Glynn	
	Camden	
	Brantley	
7.2	Chatham	
7.3	Bryan	
	Liberty	
7.4	Wayne	
	McIntosh	
	Long	

0 2 4 6 8 10 12[2]

Weekdays

Work Unit	County	Average Daily LEAs
7.1	Glynn	
	Camden	
	Brantley	
7.2	Chatham	
7.3	Bryan	
	Liberty	
7.4	McIntosh	
	Long	
	Wayne	

0 2 4 6 8 10 12[2]

<2   <13

[1] Weekends = Saturday & Sunday

[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

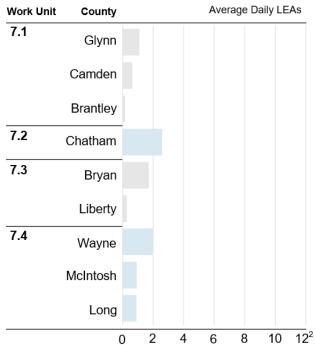# Region 7 Daily Law Enforcement Actions, Deer Season
by Work Unit, FY17&18

Weekends[1]

Work Unit	County	Average Daily LEAs
7.1	Brantley	
	Glynn	
	Camden	
7.2	Chatham	
7.3	Bryan	
	Liberty	
7.4	McIntosh	
	Long	
	Wayne	

0 2 4 6 8 10 12[2]

Weekdays

Work Unit	County	Average Daily LEAs
7.1	Glynn	
	Brantley	
	Camden	
7.2	Chatham	
7.3	Bryan	
	Liberty	
7.4	Wayne	
	Long	
	McIntosh	

0 2 4 6 8 10 12[2]

[1] Weekends = Saturday & Sunday

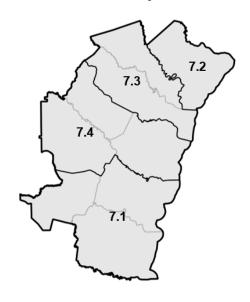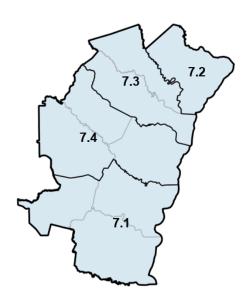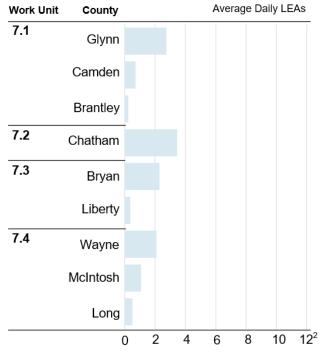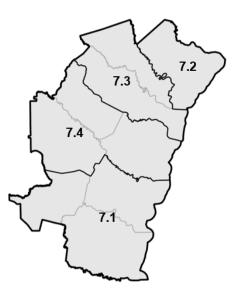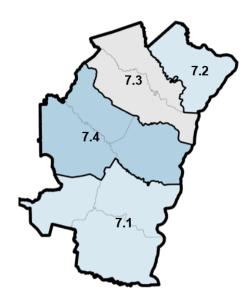[2] Scale represents the largest work unit LEAs for each season. Totals are broken out by county.

<2   <13

Appendix F: State Parks & Historic Sites Division

The table and corresponding map below present the total visitation to Georgia state parks and select historic sites during state fiscal years 2017 and 2018. The State Parks & Historic Sites Division estimates that approximately 20.7 million guests visited the 48 properties during the two-year period.[14] In the map below, we categorize these destinations by county using a seven-point scale from 0 visitors (no park) to 1.5 million visitors (busiest park).[15] In the table below we provide details of visitation by region, work unit, and park/historic site. As shown in the map and table, guest volume is highly variable among sites, counties, work units, and regions. Using guest volume as a proxy for law enforcement risk, these discrepancies can have ramifications that LED should consider when distributing and assigning wardens to regions, work units, counties, and sites of interest. Some highlights are presented below:

- **Regions**: Regions varied widely in the visitation volume, with two regions (Region 1 and 2) accounting for nearly half of the overall visitation for the period.

  - Region 2 contains 15 state parks or select historic sites (more than any other region) and received the highest overall visitation (6.4 million guests) during the two-year period, accounting for 30.8% of overall volume.

  - Region 1 contains 6 state parks or select historic sites and received the second highest overall visitation (3.6 million guests) among regions, accounting for 17.3% of overall volume.

  - Regions 3, 4, 5, and 6 contain 24 state parks combined and received approximately the same number/percentage of visitors during the period, ranging from 2.3 million visitors (Regions 4 and 6) to 2.4 million visitors (Regions 3 and 5), accounting for between 11.2% and 11.7% each.

  - Region 7 contains 3 state parks and received the lowest overall visitation (1.3 million guests), accounting for 6.3% of overall volume.

- **Work Units**: Like regions, work units varied widely in total visitation volume.

  - The range of visitation among work units was significant, with a high of 2.8 million guests (work unit 2.4) to a low of 0.1 million (work unit 3.3).

  - Work unit 2.4 contains 7 state parks and received nearly twice as many visitors (2.8 million guests) as work unit 1.3 (1.5 million guests), the second most visited.

- **Counties and Sites**: Much of the variation in visitor volume presented above and below can be accounted for by isolating the most popular state park and historic sites and identifying the county in which the site is located. For example, Sweetwater Creek Park is located in the metropolitan Atlanta area, received 1.4 million guests during the two-year period, and accounts for 7.2% of the entire volume for the state. Other popular parks usually account for a large percentage of the work unit or region volume and should serve as the data points mostly informing LED when integrating state park visitation data into warden distribution and assignments.
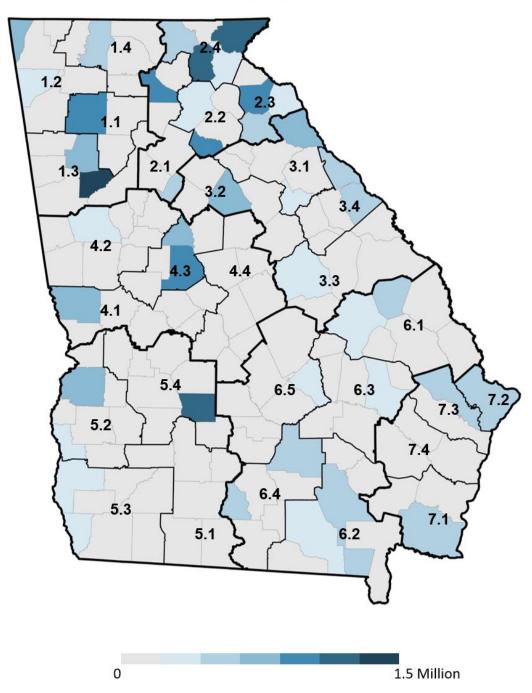
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[14] Visitation figures are estimates based on overnight occupancy, park pass, and traffic count data.
[15] Some state parks cross over county lines. For purposes of this analysis we assigned state parks to the county that contained the park's main office.

State Park/Historic Site Visitation by LED Work Units, SFY 2017-2018

Region 1		
Work Unit	**Visitation**	**(%)**
Total	**3,580,867**	**17.3%**
1.1	**853,075**	**4.1%**
Red Top Mountain State Park (Bartow)	853,075	
1.2	**873,368**	**4.2%**
Cloudland Canyon State Park (Dade)	652,568	
James H.(Sloppy) Floyd State Park (Chatooga)	220,800	
1.3	**1,498,292**	**7.2%**
Sweetwater Creek State Conservation Park (Douglas)	1,466,746	
Pickett'S Mill Battlefield State Historic Site (Paulding)	31,546	
1.4	**356,132**	**1.7%**
Fort Mountain State Park (Murray)	356,132	

Region 2		
Work Unit	**Visitation**	**(%)**
Total	**6,366,594**	**30.8%**
2.1	**1,088,308**	**5.3%**
Amicalola Falls State Park (Dawson)[1]	767,846	
Panola Mountain State Conservation Park (Rockdale)	320,462	
2.2	**1,185,755**	**5.7%**
Fort Yargo State Park (Barrow)	944,471	
Don Carter State Park (Hall)	241,284	
2.3	**1,345,052**	**6.5%**
Tugaloo State Park (Franklin)	396,272	
Watson Mill Bridge State Park (Madison)	369,780	
Victoria Bryant State Park (Franklin)	365,495	
Hart State Outdoor Rec. Area (Hart)	213,505	
2.4	**2,747,479**	**13.3%**
Tallulah Gorge State Park (Rabun)	939,759	
Unicoi State Park (White)[1]	928,503	
Vogel State Park Union)	418,701	
Black Rock Mountain State Park (Rabun)	209,294	
Moccasin Creek State Park (Habersham)	167,057	
Smithgall Woods (White)	67,607	
Hardman Farm State Historic Site (White)	16,558	

Region 3		
Work Unit	**Visitation**	**(%)**
Total	**2,411,351**	**11.7%**
3.1	**868,932**	**4.2%**
Richard B. Russell State Park (Elbert)	721,812	
A. H. Stephens State Historic Park (Taliaferro)	147,120	
3.2	**678,729**	**3.3%**
Hard Labor Creek State Park (Morgan)	678,729	
3.3	**104,576**	**0.5%**
Hamburg State Outdoor Rec. Area (Washington)	104,576	
3.4	**759,114**	**3.7%**
Elijah Clark State Park (Lincoln)	467,784	
Mistletoe State Park (Columbia)	291,330	

Region 4		
Work Unit	**Visitation**	**(%)**
Total	**2,320,834**	**11.2%**
4.1	**693,503**	**3.4%**
F. D. Roosevelt State Park (Harris)	693,503	
4.2	**147,707**	**0.7%**
Chattahoochee Bend (Coweta)	147,707	
4.3	**1,479,624**	**7.1%**
High Falls State Park (Monroe)	903,731	
Indian Springs State Park (Butts)	575,893	

Region 5		
Work Unit	**Visitation**	**(%)**
Total	**2,395,859**	**11.6%**
5.1	**0**	**0.0%**
5.2	**880,985**	**4.3%**
Providence Canyon State Outdoor Rec. Area (Stewart)	458,358	
Florence Marina State Park (Stewart)	239,625	
George T. Bagby State Park (Clay)[1]	183,002	
5.3	**373,882**	**1.8%**
Seminole State Park (Seminole)	196,854	
Kolomoki Mounds State Historic Park (Early)	177,028	
5.4	**1,140,992**	**5.5%**
Georgia Veterans State Park (Crisp)[1]	1,140,992	

Region 6		
Work Unit	**Visitation**	**(%)**
Total	**2,309,938**	**11.2%**
6.1	**478,785**	**2.3%**
Magnolia Springs State Park (Jenkins)	299,474	
George L. Smith State Park (Emanuel)	179,311	
6.2	**669,239**	**3.2%**
Laura S. Walker State Park (Ware)	473,510	
Stephen C. Foster State Park (Clinch)	195,729	
6.3	**212,183**	**1.0%**
Gordonia Alatamaha State Park (Tattnall)	212,183	
6.4	**725,844**	**3.5%**
Reed Bingham State Park (Cook)	453,078	
General Coffee State Park (Coffee)	272,766	
6.5	**223,887**	**1.1%**
Little Ocmulgee State Park (Wheeler)[1]	223,887	

Region 7		
Work Unit	**Visitation**	**(%)**
Total	**1,309,598**	**6.3%**
7.1	**399,071**	**1.9%**
Crooked River State Park (Camden)	399,071	
7.2	**464,702**	**2.2%**
Skidaway Island State Park (Chatham)	464,702	
7.3	**445,825**	**2.2%**
Fort Mcallister State Historic Park (Bryan)	445,825	
7.4	**0**	**0.0%**

State Parks Visitation by County
FY17&18

0   1.5 Million

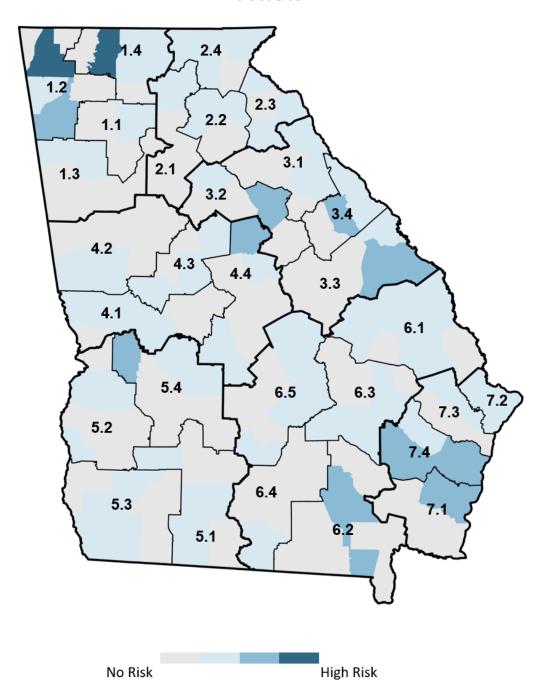Source: DNR State Parks and North Georgia Mountains Authority

Appendix G: Wildlife Resource Division: Game Management

The table and corresponding map below present a law enforcement risk classification by county and work unit using data provided by the DNR game management unit within the Wildlife Resources Division. The game management unit is charged with managing/controlling more than 100 wildlife management areas and relies on LED to respond to calls for service and conduct periodic patrols on properties.

We categorize counties using a four-point scale from No Risk to High Risk based on a weighted calculation derived from a profile of properties and infrastructure. As shown in the map and table, law enforcement risk is highly variable between counties and work units. Using these county-based law enforcement risk classifications can have ramifications that LED should consider when distributing and assigning wardens to regions, work units, counties, and sites of interest. For example, this unit's classification identifies 13 of 29 work units and 12 of 74 counties as either high or moderate risk. This type of data point should be integrated transparently and consistently into LED personnel distribution and assignment methods.

Counties, by Game Management Law Enforcement Risk					
County	**Risk**	**County**	**Risk**	**County**	**Risk**
Murray	High	Appling	Low	Lowndes	Low
Walker	High	Baker	Low	Lumpkin	Low
Burke	Moderate	Baldwin	Low	Macon	Low
Floyd	Moderate	Banks	Low	Madison	Low
Glynn	Moderate	Bryan	Low	Meriwether	Low
Greene	Moderate	Bulloch	Low	Miller	Low
Marion	Moderate	Chatham	Low	Monroe	Low
McDuffie	Moderate	Chattooga	Low	Paulding	Low
McIntosh	Moderate	Cherokee	Low	Polk	Low
Putnam	Moderate	Clay	Low	Pulaski	Low
Ware	Moderate	Colquitt	Low	Rabun	Low
Wayne	Moderate	Columbia	Low	Richmond	Low
		Dawson	Low	Screven	Low
		Decatur	Low	Seminole	Low
		Dooly	Low	Stephens	Low
		Dougherty	Low	Stewart	Low
		Elbert	Low	Talbot	Low
		Emanuel	Low	Tattnall	Low
		Fannin	Low	Taylor	Low
		Gilmer	Low	Telfair	Low
		Hall	Low	Thomas	Low
		Harris	Low	Towns	Low
		Hart	Low	Troup	Low
		Houston	Low	Union	Low
		Irwin	Low	Upson	Low
		Jasper	Low	Walton	Low
		Jeff Davis	Low	Webster	Low
		Jenkins	Low	Wheeler	Low
		Laurens	Low	White	Low
		Lincoln	Low	Wilkes	Low
		Long	Low		

Work Units, by Game Management Law Enforcement Risk					
Work Unit	**Risk**	**Work Unit**	**Risk**	**Work Unit**	**Risk**
1.2	High	2.1	Moderate	1.1	Low
1.4	High	2.4	Moderate	1.3	Low
4.4	High	3.2	Moderate	2.2	Low
7.4	High	3.3	Moderate	2.3	Low
		5.1	Moderate	3.1	Low
		5.4	Moderate	3.4	Low
		6.1	Moderate	4.1	Low
		6.3	Moderate	4.2	Low
		6.5	Moderate	4.3	Low
				5.2	Low
				5.3	Low
				6.2	Low
				6.4	Low
				7.1	Low
				7.2	Low
				7.3	Low

Game Management Risk by County
FY17&18

No Risk   High Risk
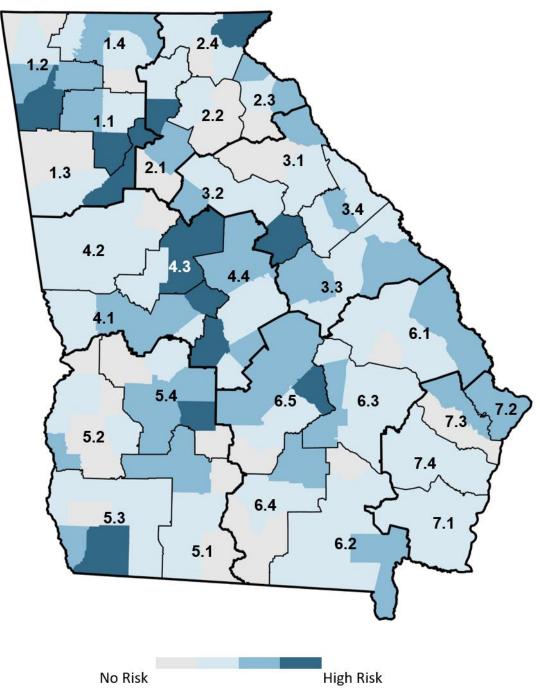
Source: DNR Wildlife Resources Division

Appendix H: Wildlife Resources Division: Fish Management

The table and corresponding map below present a law enforcement risk classification by county and work unit provided to us by the DNR fish management unit within the Wildlife Resources Division. The fish unit is charged with overseeing and managing aquatic habitat and fish populations throughout the state and relies on LED to respond to calls for service and conduct periodic patrols on properties. We categorize counties using a four-point scale from No Risk to High Risk based on a weighted calculation derived from a profile of properties and infrastructure. As shown in the map and table, law enforcement risk is highly variable between counties and work units. Using these county-based law enforcement risk classifications can have ramifications that LED should consider when distributing and assigning wardens to regions, work units, counties, and sites of interest. For example, this unit's classification identifies 21 of 29 work units and 52 of 125 counties as either high or moderate risk. This type of data point should be integrated transparently and consistently into LED personnel distribution and assignment methods.

Counties, by Fish Management Law Enforcement Risk							
County	Risk	County	Risk	County	Risk	County	Risk
Bibb	High	Baldwin	Moderate	Appling	Low	Long	Low
Butts	High	Bartow	Moderate	Atkinson	Low	Lumpkin	Low
Cobb	High	Bleckley	Moderate	Baker	Low	Macon	Low
Crisp	High	Bryan	Moderate	Ben Hill	Low	McIntosh	Low
Decatur	High	Burke	Moderate	Berrien	Low	Meriwether	Low
Floyd	High	Charlton	Moderate	Brantley	Low	Mitchell	Low
Forsyth	High	Chatham	Moderate	Bulloch	Low	Morgan	Low
Fulton	High	Chattooga	Moderate	Camden	Low	Muscogee	Low
Hancock	High	Clay	Moderate	Carroll	Low	Peach	Low
Houston	High	Coffee	Moderate	Cherokee	Low	Pierce	Low
Jasper	High	Crawford	Moderate	Clayton	Low	Pike	Low
Monroe	High	Dodge	Moderate	Clinch	Low	Pulaski	Low
Rabun	High	Dooly	Moderate	Colquitt	Low	Quitman	Low
Wheeler	High	Dougherty	Moderate	Columbia	Low	Richmond	Low
		Effingham	Moderate	Coweta	Low	Spalding	Low
		Elbert	Moderate	Dawson	Low	Stewart	Low
		Fannin	Moderate	Douglas	Low	Taliaferro	Low
		Gordon	Moderate	Early	Low	Tattnall	Low
		Gwinnett	Moderate	Echols	Low	Telfair	Low
		Hart	Moderate	Emanuel	Low	Terrell	Low
		Jeff Davis	Moderate	Evans	Low	Thomas	Low
		Jones	Moderate	Fayette	Low	Toombs	Low
		Laurens	Moderate	Franklin	Low	Towns	Low
		Lee	Moderate	Gilmer	Low	Treutlen	Low
		McDuffie	Moderate	Glascock	Low	Troup	Low
		Montgomery	Moderate	Glynn	Low	Twiggs	Low
		Murray	Moderate	Grady	Low	Union	Low
		Newton	Moderate	Greene	Low	Upson	Low
		Putnam	Moderate	Habersham	Low	Walker	Low
		Screven	Moderate	Hall	Low	Walton	Low
		Seminole	Moderate	Harris	Low	Ware	Low
		Stephens	Moderate	Heard	Low	Warren	Low
		Sumter	Moderate	Jefferson	Low	Wayne	Low
		Talbot	Moderate	Jenkins	Low	Whitfield	Low
		Taylor	Moderate	Johnson	Low	Wilkes	Low
		Washington	Moderate	Lamar	Low	Wilkinson	Low
		Wilcox	Moderate	Lincoln	Low		
		Worth	Moderate				

Work Units, by Fish Management Law Enforcement Risk					
Work Unit	Risk	Work Unit	Risk	Work Unit	Risk
2.1	High	1.1	Moderate	1.3	Low
3.2	High	1.2	Moderate	2.2	Low
4.1	High	1.4	Moderate	3.1	Low
4.2	High	2.3	Moderate	6.4	Low
4.3	High	2.4	Moderate	7.1	Low
4.4	High	3.3	Moderate	7.2	Low
5.4	High	3.4	Moderate	7.3	Low
6.3	High	5.1	Moderate	7.4	Low
6.5	High	5.2	Moderate		
		5.3	Moderate		
		6.1	Moderate		
		6.2	Moderate		

Fish Management Risk by County
FY17&18

No Risk   High Risk

Source: DNR Wildlife Resources Division