Strategic Risk Assessment (SRA) & Strategic Operations

Tim Sampson
timothy.sampson@usda.gov
509-690-2063

Jen Rabuck
jennifer.rabuck@usda.gov
715-661-0579

Russ Long
russell.long2@usda.gov
202-281-7671

Jon Teutrine
jon.teutrine@usda.gov
618-841-1533
Levels of Risk Management

- **Enterprise**
- **Strategic**
- **Operational**
- **Real-Time**

<table>
<thead>
<tr>
<th>Levels</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise</td>
<td>Agency/Bureau Policy, Organization's Safety Plan, Departmental Policy</td>
</tr>
<tr>
<td>Strategic</td>
<td>Strategic Risk Assessment</td>
</tr>
<tr>
<td>Operational</td>
<td>215A, 215R</td>
</tr>
<tr>
<td>Real-Time</td>
<td>Sizing up a tree and falling it/Hiking into a fire/Merging into oncoming traffic</td>
</tr>
</tbody>
</table>
Why the SRA?

• Most methods IMT use focus on task-related risks & hazards. Few capture cumulative factors when multiple tasks are implemented over successive days & wide geography

• Assesses Strategic Risk in combination with Operational Risk

• Tension between managing risk to Critical Values & Responders: understanding Acceptable Risk requires collaborative communication
A collective team of IMT members, Subject Matter Experts (SMEs), and host unit representatives meet for a discussion.

Commonly:
- Safety
- Operations
- Logistics
- Fire Behavior Analyst/Technical Specialist
- Medical Unit Leader
- Air Operations

Strongly recommended:
- Incident Commander or Deputy
- Agency Administrators or Representatives
- Resource Advisors

The investment of time in SRA collaboration provides wholistic understanding and aligned vision for enhanced functionality at all levels.
What is the SRA: Sensemaking

SRA occurs at the Strategic Action level. It informs and relies on assessed operational risks for tactics (215 R/A).

Conversation helps with sensemaking:
- How does the group feel about the strategic action?
- What is the best alternative & why?
- What are the trade-offs?
- Are there unintended outcomes possible from the use of mitigations?
- Do we have the right resources to accomplish what is required?

SRA focuses on the balance between Critical Values At Risk and on 6 major risk influencers:
- How do they intercept or interplay with the current strategy?
“Having the AAs in the room is a critical connection for complete understanding - hearing the conversation firsthand is invaluable. It helped me understand where I needed to focus. I also got to share clear expectations and nuances related to our Values.” (Agency Administrator)

“We’re still working together to get better at thinking strategically as a Team. The SRA really helped us grow and understand at a completely new level.” (Operations)

“The 215R tells us how to do things safely. The SRA tells us if we should do it at all.” (Agency Administrator)

“This process is more collective and transparent and gets the whole team - and local component - pointing in the same direction right out of the gate.” (Operations)
<table>
<thead>
<tr>
<th>Incidents Strategic Risk Assessment (SRA)</th>
<th>Incident Name: Sample Fire</th>
<th>Date: 6/6/2022</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic Action 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1. Details</strong></td>
<td><strong>2. Location</strong></td>
<td><strong>3. Resources</strong></td>
</tr>
<tr>
<td>Utilize indirect control lines and natural barriers to keep the fire south on national forest to protect private land in critical infrastructure.</td>
<td>Branch II</td>
<td>4 Strike T6 engine Teams, 3 Type 2 crews, 2 Type 1 crews, 6 dozers with overhead, Aircraft fixed &amp; rotor</td>
</tr>
</tbody>
</table>

6. Discussion Notes:
The spring creek watershed is vital to the local community health as well as economy keeps a town of Spring Creek viable. Where or how does that value compete with the Leased Cabins and Range Allotments? If one value protects others, does that make it the priority? Is the Timber sale sold or not? Need to fine-tune the map showing range allotments and leased FS cabins.
## Critical Values at Risk

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Creek Community</td>
<td>Catastrophic</td>
<td>Possible</td>
<td>Extremely High</td>
</tr>
<tr>
<td>Spring Creek Watershed</td>
<td>Catastrophic</td>
<td>Likely</td>
<td>Extremely High</td>
</tr>
<tr>
<td>Lamb Cr Timber Sale</td>
<td>Critical</td>
<td>Almost Certain</td>
<td>Extremely High</td>
</tr>
<tr>
<td>Range Allotments in South Basin Road</td>
<td>Moderate</td>
<td>Almost Certain</td>
<td>High</td>
</tr>
<tr>
<td>Leased FS Cabins (55)</td>
<td>Critical</td>
<td>Possible</td>
<td>High</td>
</tr>
<tr>
<td>911 (EMS) communication towers</td>
<td>Catastrophic</td>
<td>Rare</td>
<td>Moderate</td>
</tr>
<tr>
<td>Highway 31 (travel route)</td>
<td>Critical</td>
<td>Unlikely</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

### Critical Values at Risk Matrix

<table>
<thead>
<tr>
<th>Probability Likelihood of Event Occurring</th>
<th>Severity Consequence if Event Occurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost Certain (expected scenario)</td>
<td>Extremely High</td>
</tr>
<tr>
<td>Likely (occurs frequently)</td>
<td>Extremely High</td>
</tr>
<tr>
<td>Possible (could occur under specific conditions)</td>
<td>High</td>
</tr>
<tr>
<td>Unlikely (rare to occur)</td>
<td>Moderate</td>
</tr>
<tr>
<td>Rare (impossible, not has occurred in the past)</td>
<td>Low</td>
</tr>
</tbody>
</table>

- **Catastrophic**: Event is destroying, catastrophic loss, life threatening, resources destroyed. (Irreversible)
- **Critical**: Event is uncontrolled, catastrophic impact, long-term resilience and sustainability (Irreversible)
- **Moderate**: Event is controlled, resources are impacted, short-term impact can be addressed through existing processes
- **Negligible**: Event has minor impact, temporary, impacts can be mitigated.

### Probability Likelihood of Event Occurring

- **Extremely High**
- **High**
- **Moderate**
- **Low**
- **Negligible**
## Critical Values at Risk

<table>
<thead>
<tr>
<th>Strategic Action</th>
<th>Priority</th>
<th>Critical Value at Risk</th>
<th>Severity of Impact</th>
<th>General Location</th>
<th>Branch</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or 2</td>
<td>1</td>
<td>Monarch</td>
<td>Catastrophic</td>
<td>Div U/T Break</td>
<td>Balsinger</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Neihart</td>
<td>Catastrophic</td>
<td>Div T/A Break</td>
<td>Balsinger</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Hay 89 Corridor</td>
<td>Catastrophic</td>
<td>Div T</td>
<td>Balsinger</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Wilsall</td>
<td>Catastrophic</td>
<td>Div P</td>
<td>American Fork</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Shields River/Smith Creek/East Smith Creek Private Structures</td>
<td>Catastrophic</td>
<td>Div P</td>
<td>American Fork</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>State/Private/NPS grazing lands, livestock and associated infrastructure</td>
<td>Critical</td>
<td>All</td>
<td>Woods Creek</td>
<td>Camas Creek, Birch Creek, Benton Gulch, Gilles Ranch, Lane, Field</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Duck Creek Private Structures</td>
<td>Critical</td>
<td>DIV SS</td>
<td>Woods Creek</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Duck Creek Communication Tower</td>
<td>Critical</td>
<td>Div MM/QQ</td>
<td>Woods Creek</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>State/Private/NPS Grazing Lands and associated Infrastructure West of Belt Park</td>
<td>Critical</td>
<td>Div T</td>
<td>Balsinger</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Belt Park Community</td>
<td>Critical</td>
<td>Div T</td>
<td>Balsinger</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Deer Creek Estates</td>
<td>Critical</td>
<td>Div T</td>
<td>Balsinger</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>State/Private/NPS grazing lands, livestock and associated infrastructure</td>
<td>Critical</td>
<td>All</td>
<td>American Fork</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Iron Mines Cabin</td>
<td>Critical</td>
<td></td>
<td>Balsinger</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Yellowstone Cutthroat Trout</td>
<td>Critical</td>
<td>Upper Shields</td>
<td>American Fork</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Known Heritage Resources</td>
<td>Critical</td>
<td>All</td>
<td>American Fork</td>
<td>READS have inventory of high priority sites, spread across forest</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>Tillinghast &amp; Harley Creek Westslope Cutthroat Trout</td>
<td>Critical</td>
<td>All</td>
<td>American Fork</td>
<td>Retardant Avoidance is primary concern, not fire effects</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>Miller Cabin</td>
<td>Moderate</td>
<td></td>
<td>Woods Creek</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Thompson Guard Station</td>
<td>Moderate</td>
<td>Div MM</td>
<td>Woods Creek</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>Tenderfoot Experimental Forest Infrastructure</td>
<td>Moderate</td>
<td>Div I</td>
<td>Balsinger</td>
<td>No Equipment in TCEF, need if needed per forest plan. Concerned about fire effects.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Crandall Creek Cabin</td>
<td>Moderate</td>
<td></td>
<td>American Fork</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Porcupine Cabin</td>
<td>Moderate</td>
<td></td>
<td>American Fork</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Harley Park Heritage site</td>
<td>Moderate</td>
<td></td>
<td>American Fork</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Fuel Contracts</td>
<td>Moderate</td>
<td></td>
<td>American Fork</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Trail Contracts</td>
<td>Moderate</td>
<td></td>
<td>American Fork</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Onion Park RNA</td>
<td>Negligible</td>
<td></td>
<td>Balsinger</td>
<td>No equipment, not concerned with fire effects</td>
</tr>
</tbody>
</table>
### Responder Risk:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R1  Ground Transportation</td>
<td>Critical</td>
<td>Unlikely</td>
<td>Moderate</td>
</tr>
<tr>
<td>R2  Rapid Fire Growth</td>
<td>Critical</td>
<td>Unlikely</td>
<td>Moderate</td>
</tr>
<tr>
<td>R3  Hit-by Hazards</td>
<td>Catastrophic</td>
<td>Possible</td>
<td>Extremely High</td>
</tr>
<tr>
<td>R4  Aviation Operations</td>
<td>Catastrophic</td>
<td>Rare</td>
<td>Moderate</td>
</tr>
<tr>
<td>R5  Human Factors</td>
<td>Critical</td>
<td>Possible</td>
<td>High</td>
</tr>
<tr>
<td>R6  EMS Response Capability</td>
<td>Critical</td>
<td>Possible</td>
<td>High</td>
</tr>
<tr>
<td>R7  No Data</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 15. Risk Mitigations & Rationale

Current RLS for a tree strike on incident. Where the ground allows to mitigate overhead hazards with heavy equipment. Utilize spikes, FOBs and other remote logistical options to minimize drive time and exposure. REMS with UTVs to withdraw/extract the injured and provide for IWI Golden Hour/Andy Palmer protocol. Deference to expertise and respect for the person performing the mission to ensure not only critical mission buy-in, but also the highest margin for safety via a robust feedback loop and 'Go-No-Go' process.
Risk Summary:

- **Not** a decision tool - shows how components relate to each other
- Used to inform acceptable risk
- Shows which Values are most at risk
- Displays which Risks hold the largest portion of the Strategic Action
- Helps inform messaging & other products (ICS-204, ICS-206, ICS-208, 215 R/A, etc.)
SRA Product:
2022 v2
Strategic Operations

New for the 2022 Fire Season
What if We Can Do Better?

- IMT’s who formulate successful strategies; What are they doing and how do they do it?
- How does an IMT apply the tools of science into the strategy inside the time wedge?
- What do successful IMT’s have in common?
- How do we better leverage expertise?
- Can we scientifically inform and validate the strategy?
- What processes existed that created synergy in formulation of strategy?
- We naturally operate off our historical catalog of experiences.
Attributes of Effective Strategic Planning

- The IMT has a process & clear intent to have a strategic plan on every incident.
- The IMT commits a resource to produce & maintain the Strategic Operations workload, usually an Operations Chief.
- Strategic Operations incorporates new & advanced Risk Management Assistance (RMA) analytics extensively, along with other modeling & predictive tools balanced and validated on the ground.
- The completed Plan is visual - in map form.
- The IC believes these maps are a vital communications tool, especially with the Agency Administrator.
- The Strategic Plan either
  - validates the objectives given for the incident
  - Serves as an effective tool to negotiate necessary change to objectives when expectations can’t be met with the time, space, & resources available to the incident.
Strategic Operations Defined

- A current workload (Operations Section Chief and others) responsible for managing strategy-related decisions on behalf of the incident commander by blending best available science, collective experiences, and collaborative planning techniques to develop short- and long-term plans.

- When utilized correctly, all actions taken on an incident will be in concert to accomplish strategic objectives while lowering overall risk to responders & the public, mitigating consequences to critical values, & ensuring wise/appropriate fiscal management.
WILDLAND FIRE

**Determine Incident Status**
- Incident Priorities
- Incident Objectives
- Control Objectives
- Leader’s Intent
- Current Strategy
- Probability of Success

**Draft End State**
- Understand the big picture to guide strategy development.

**Develop Strategies**
- Human Intelligence
  - Feedback from local fire managers.
  - Input from key cooperators and stakeholders
  - Input from DIVS and OPBDs or other “boots on the ground”
  - Personally observe and scout
- Analytics
  - PCL/SDI Analysis
  - Prioritized VRs
  - Fuels / Fire history
  - Snag Hazard
  - Ground Evac Times
  - FSPro
  - Near Term / Short Term
  - Weather (Season End / Rare Event)

**Analyze Strategic Risk**
- Utilize SRA process
- Ground Evac Time
- Medical Plan
- Snag Hazard Map
- SDI

**Seek Buy-in**
- IC and IMT can support the strategy
- AAs support strategy
- Cooperators and Stakeholders support strategy
- Boots on the ground support strategy

**Communicate and Implement Strategy**
- Map created and shared with boots on the ground.
- Clear intent provided in IAP using TPE
- Briefings speak to strategy

**Monitor Implementation of Strategy**
- Update Map product daily.
- Reevaluate strategies after significant changes.
- No significant changes affecting the strategy
- Yes significant changes have affected the strategy

**In-brief, Shadow Day**
- Day 1 – Day 2
- Day 3 – Day 4
- Ongoing
RMA Dashboard: Map Viewer Tab (GIS Data)

Welcome to the Risk Management Assistance (RMA) Dashboard!

The RMA Dashboard is a series of tabs to products to help line officers, agency administrators, fire managers, incident management teams, area commands, geographic area coordination centers, and multi-agency coordination groups to make more risk-informed decisions to achieve safer and improved outcomes. These additional analytics are not a replacement for locally-derived and calibrated decision thresholds or procedures as outlined in manual direction (e.g., the WFDSS Decision, Fire Danger Operating Plans). However, it is hoped that these new products can be infused into pre- and post-planning and incident response systems, procedures, and documentation, like the WFDSS Course of Action or Rational.

The Dashboard tabs are designed to move left to right. We want users to connect the information in the tabs to develop a strategic awareness of the current situation, firefighter and public safety, potential benefits or loss to highly values resources and assets, opportunities for containment, and past and predicted fire behavior and spread. The incident Stats tab will provide a user with wildfire location and real time summary information. The Map Viewer is a spatial tool to view and create custom maps of the “Big Five First Fire”—SDI, PCL, Snag Hazard, estimated ground evacuation, and PODS—as well as other applicable GIS information and data download instructions. The Timeline Generator plots incident statistical information in an interactive graph that can be saved as a PDF. Fire Danger, Severe Fire Weather, and the Fire Weather Matrix tabs should be viewed collectively to answer the questions, “What is our current fire danger and how does it compare historically? What is the forecasted fire weather? What weather variables constitute neutral, elevated, and critical fire weather? The season-ending analysis (the ‘Jolly Generator’) and the fire library are designed to help you leverage past historical data to answer questions, “When does the fire season typically end?” and what can I learn from past fire events and resources specific to my fire location?

Click here for more information about the Forest Service RMA program or click here to download a list of RMA analytics with a description and example of each product. Questions and suggestions can be directed to Rick Stratton (richard.stratton@usda.gov). Special thanks to Lauren Miller (the Dashboard) and Kit O’Connor, Jess Haas, Matt Jolly, Crystal Stonesifer, and Jim Edmonds (product and programming support).

Ordering RMA

RMA products are available within this Dashboard and on the RMA SharePoint Site. Below is a graphic that lists the RMA product and the delivery mechanism. With the increasing use of RMA analytics, the demand on the RMA analytics group has been substantial. PLEASE use the resources available (i.e., the Dashboard and the SharePoint site), and only request additional support if remote delivery or in person assistance is required. Further information on how to view, download, and use the information on the RMA Dashboard can be found here. Contact Julian Atuso (303-656-8450) or Rick Stratton for more information.
RMA Products Can be Used to Inform Strategic Analysis

- Ground Evacuation
- Snag Hazard
- Suppression Difficulty Index (SDI)
- Potential Control Locations (PCL)
- *LINE (e.g., a primary, alternate, or POD) SDI, PCL, Snag, Ground Evac, and FSPro
- Season-Ending Analysis
- Quantitative Wildfire Risk Assessment (cNVC)
Mendocino Complex – Use of SDI to Inform Strategic Alternatives
2022: WHAT’S NEXT?

- Interagency Participation/Leadership
- Revisit 2021 Field Teams (12)
- Add 8 new teams in 2022
- Establish larger, interagency coaching bench
- Comm Plan
- Socialization:
  - Agencies
  - Training courses
  - IMRR
  - IMTs
  - GACCs
  - AAs
  - READs, SMEs, etc.
Questions?

Tim Sampson
timothy.sampson@usda.gov
509-690-2063

Jen Rabuck
jennifer.rabuck@usda.gov
715-661-0579

Russ Long
russell.long2@usda.gov
202-281-7671

Jon Teutrine
jon.teutrine@usda.gov
618-841-1533